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PRELIMINARY ASSESSMENT
AMTRAK WILMINGTON REFUELING FACILITY
DE-266

FEBRUARY, 1993

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Site: Amtrak Wilmington Refueling Facility

EPA ID No.: DED 984075432

DE ID No.: DE-266

1. INTRODUCTION

Under the authority of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA), the Delaware Department of Natural Resources and Environmental Control (DE DNREC) conducted a Preliminary Assessment (PA) at the Amtrak Wilmington Refueling facility. The Preliminary Assessment (PA) for the Amtrak Railyard Maintenance facility is the second (PA) conducted at the plant site.

In 1989, the first Preliminary Assessment was performed under EPA Contract No. 68-01-7346. This Preliminary Assessment covered the area around the locomotive maintenance shop and administrative buildings. An area defined as the refueling center (located south of the locomotive maintenance shop) is the subject of this investigation. See Figure 1 and 2 for the site location area of investigation.

The purpose of the investigation was to collect information concerning conditions in this additional area sufficient to assess the threat posed to human health and environment and to determine the need for additional investigation under CERCLA/SARA or other action. The scope of the assessment included a review of the available file information, including the first PA, a comprehensive target survey, a search for historical waste sites and a site reconnaissance.

2. SITE DESCRIPTION, OPERATIONAL HISTORY, AND WASTE CHARACTERISTICS

2.1 Location

The Amtrak Wilmington Refueling facility is located at the foot of Vandever Avenue in Wilmington, Delaware, between the Amtrak and Conrail railroad tracks. The center of the site property can be located at latitude 39°44'49" north and longitude 75°31'20" west. The new investigation is to the south of the previous assessment (see Figure 3).

According to climatological data obtained for Wilmington, Delaware, based on the period from 1951 to 1980, the average annual temperature is 54.0°F; the coldest month is January with a mean temperature of 31.2°F, and the hottest month is July with a mean temperature of 76°F.

The average annual precipitation is 41.38 inches.

2.2 Site Description

The Amtrak facility is a 85-acre railyard used for the repair of locomotives and passenger railcars. The facility site boundaries are as follows: The main rail line for Amtrak serves as the western border. Beyond these tracks to the west are a large commercial zone and Center City Wilmington. The main line proceeds north over Shellpot Creek, which marks the northern boundary. A paved road serves as the eastern boundary, as well as the line separating the Amtrak yard from the Conrail Edgemoor Yard. The properties of Conrail, Brandywine Industrial Complex and Atlas Sanitation serve as the southern border of the facility (see Figure 3).

The first Preliminary Assessment covered the more northern part of the Amtrak property. In the center of this area is the maintenance shop, offices and other site buildings (see Figure 4). The locomotive shop, for descriptive purposes, will serve as the hub of the repair center. One hundred feet northwest of the locomotive shop are the administrative offices. East of the locomotive shop are three buildings, the middle of which houses the drum staging area; the 55 gallon drums area used for the disposal of used oil, sludge from the pollution control system, linseed oil and waste rags. Another building was used as the PCB transformer retrofill unit, but it is not in use any more. To the northeast are two, side by side, asbestos abatement rooms and the on-site wastewater treatment facility. Approximately 1/4 mile south of this area are an abandoned round house and an engine house with an 8,000 gallon tank used for lube oil. Also to the south of the locomotive shop are buildings for the track department (450 feet southeast), the buildings and bridges department, and the communication and safety departments (between 400 and 575 feet south, respectively).

Approximately 700 feet south of the round house is the center of the new investigation (see Figure 5). An elevated 250,000 gallon fuel oil tank, used for refueling of the locomotives; the tank is not normally filled to capacity, only six thousand gallons of fuel are put in at a time. Along the railroad tracks are a 6,000 gallon waste oil tank, a diesel lube oil tank, an abandoned coal dock, and a 500 gallon kerosene storage tank. Over most of this area no vegetation grows. Away from the tracks the vegetation is non-existent where there are petroleum stained soils (see Appendix A).

An unnamed tributary to the Brandywine Creek originates on Conrail property and runs approximately south parallel to the eastern boundary of the Amtrak site. It is joined by a small ditch coming from a cement factory which is located on land leased from Conrail.

On the west side of the property is a ditch that is used for stormwater discharge. It joins the unnamed tributary just north of the Conrail property, to the south of the Amtrak facility. From there the tributary joins the Brandywine Creek. Leachate control systems, consisting of booms placed at areas of discharge, collecting debris and oil, are present in the tributary and the ditch. The booms are replaced weekly.

Petroleum stained soils are evident over most of the site west of the tributary; on the east side the vegetation seems stressed.

There is a problem with illegal dumping of trash at the site. Although, Amtrak officials attempt to stop this dumping, more rubbish was found near the ditch.

During a recent investigation, the following observations were made:

Walking from the coal station to the fuel tank along the unnamed tributary, patches of petroleum sheen were observed and a reddish brown film was flowing out of a pipe and into the tributary. The film was floating on top of the water and appeared to float past the booms. There was a full dumpster seen by the edge of the tributary, south of the coal station. While observing the site from the top of the fuel tank, a dead bird was seen to the northeast and a tire was seen to the southeast, both in the tributary. Walking from the fuel tank to the main set of railroad tracks, indiscriminate trash, metal slag and spent coal ash was present throughout the site and creosote treated wood was observed. There was petroleum stained soil in this area, except where there were buried railroad tank cars. These were found in the area between the coal station and the fuel tank. Amtrak hired Joseph H. Hardy to remove these railroad tank cars in the summer of 1990. The soil is a reddish color above where these tanks were located. No vegetation was found in this area. Along the ditch on the western side, wetland areas persist. The most abundant vegetation present is sedges. The wetland areas have been impacted by waste fluids being released into the ditch. The wastes have resulted in barren stretches being present (i.e., stained with waste fluids) in the wetland areas. Beyond the barren stretches, the wetland vegetation is stressed to the confluence with the unnamed tributary.

The water of the ditch is reddish in color. Booms were placed along discharge areas of the ditch, although this did not appear to help keep the contaminants from spreading throughout the water. As we crossed a bridge going over the ditch, there were wooden barrels and plastic trash seen in the water to the north. To the south, rusty drums were visible in the water. A trash pile was seen on the other side; it consisted mainly of wood. From the railroad tracks to the east of the ditch, the vegetation appeared to be stressed.

The railroad track area is at a higher topographic elevation than the unnamed tributary and ditch system. It appears that there has been a considerable release of waste fluids and solids in the railroad track area

over an extended period of time. The wastes from the railroad area appear to be discharging to the surface water from both overland run-off and shallow groundwater seepage.

To the east and south of the Amtrak facility the Conrail property is located (see Figure 3). According to the Amtrak personnel they are involved in the same type of operation as Amtrak. Conrail does not have an NPDES permit for discharge, but according to personnel of the NPDES program, polluted waters seem to come into the tributary of the Brandywine Creek from their property.

2.3 Operational History and Waste Characteristics

The site property is owned by the National Railroad Passenger Corporation, more commonly known as Amtrak. Amtrak Corporate offices are located in Washington, D.C. Amtrak took over the ownership and operation of the facility in 1976 from the Penn Central Railroad Company (currently Conrail).

Prior to Amtrak or its predecessor, the Penn Central Railroad Company, the Philadelphia-Wilmington-Baltimore Railroad Company occupied two locations in the area. The 1901 Atlas of the city of Wilmington by Baist shows sites east and south of Amtrak where possible centers of contamination might have existed (see Figure 6).

Since the original construction of the railyard on the subject property, the railyard has been utilized essentially for the same purpose: the maintenance, service, and overhaul of locomotives and railcars. Currently, the site also maintains an asbestos abatement facility for asbestos removal in passenger railcars.

New locomotives no longer use PCB-contaminated transformers. Older locomotives (of which there are only 12 left) in need of repair or overhaul, or identified as "leakers" and utilizing transformers containing PCB-contaminated oils, are inspected according to EPA specific guidelines. The transformers of the locomotives are inspected and repaired only on track no. 5 of the locomotive shop. A work pit beneath this track is sealed in order to collect any lubricants that may leak out. Transformers that are leaking or in need of repair are removed from the locomotive and taken to a designated area in the shop. Contained within this "caged" area, transformers are drained. All fluids are recycled. No PCB-contaminated fluids or oils are allowed to enter the sewer system or migrate from designated work areas.

In former car shop, car shop no. 1, two asbestos abatement rooms have been set up. The rooms have been sealed and are under negative pressure conditions; each have a separate air system. Workers operate in Tyvek dermal protection and self-contained breathing apparatus. The removed asbestos is soaked with a wetting agent, bagged, and removed to an authorized solid waste disposal facility. No asbestos waste remains on site.

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Amtrak holds a large quantity RCRA permit No. DED 060058062, but it is not considered a treatment, storage, and disposal (TSD) facility. The hazardous wastes consist of lubricating and waste oil.

Amtrak holds a State Permit WPCC3089A/85 and a NPDES permit DE0050962 for six discharges (see Figure 7 and Appendix B). The designated uses of the Brandywine and Shellpot Creeks in the area of discharge are: Industrial Supply, Primary and Secondary Contact Recreation and Protection of Fish, Aquatic Life and Wildlife.

The monitoring point for outfall 001 is in the Brandywine tributary -- it represents the downstream water quality after dilution. The stormwater run-off from the north side of the Amtrak property discharges through outfall 002A to the Shellpot Creek; it disposes storm water from one third of the site.

For true representation of storm water run-off water quality to the Brandywine Creek four new monitoring locations (003, 004, 005, and 006) were installed. Outfall 003 is located near the 250,000 gallon oil tank and Dam B and should represent the most likely contaminated run-off of the site. Outfall 004 is the discharge from the catch basin south of the round house. This basin has a lower ground level as compared to its surroundings. Storm water run-off stays there and eventually flows to the drainage ditch. Outfall 005 is the downstream flow of the drainage ditch which represents the extreme south side of the maintenance yard. Outfall 006 is the stormwater discharge through a 38 inch by 60 inch pipe from the southern half of the maintenance facility.

The monitoring requirements and effluent limitations are based on the State of Delaware Surface Water Quality Standards.

For the Amtrak site, the effluent limitations are: 1) The daily average oil and grease concentration shall not exceed 10 mg/L and the maximum instantaneous concentration shall be less than 15 mg/L. 2) There shall be no discharge of poly chlorinated biphenyls (PCBs) from the Amtrak facility. 3) The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units. 4) The discharge shall be free from floating solids, sludge deposits, debris, oil and scum.

The monitoring requirements are the following:

Oil and Grease	Quarterly Measurement	Grab Sample
PCB's	Quarterly Measurement	Composite Sample
Surfactants	Quarterly Measurement	Composite Sample
TCE's	Quarterly Measurement	Grab Sample
pH	Quarterly Measurement	Grab Sample
TPH	Quarterly Measurement	Grab Sample

In Appendix C are the five year data for outfalls 001 and 002A.

No data are yet available for outfalls 003, 004, 005, and 006. The trace organics analysis does not show any figures because the PCB limits are too low to be detected, and the other determinations were not asked for (telephone communication with S. Merchant, NPDES, DNREC).

In addition to the above permits, Amtrak was granted permit number W-85-04 for the discharge of facility waste waters to the City of Wilmington's sewer system. The permit became effective January 1, 1988, and will expire December 31, 1993 (see Appendix D). Sampling reports are submitted to the Department of Public Works every six months. Sampling of the release to the city sewer system after pretreatment on site is conducted for PCB's, nickel, copper, zinc, and total chromium. The analyses of the last four years show that the PCB concentrations have been below 10 ppb, and the concentrations of nickel, copper, zinc, and total chromium have been below the limits of 1.5, 5.0, 15.0, and 6.0 ppb respectively (oral communication, Merritt Tappan, Wilmington Public Works, April, 1993) (see Appendix E).

2.4 Previous Inspections

Over a four-year period, Amtrak completed an extensive study of PCB concentrations in on-site soils. Samples were collected throughout the railyard and along its perimeter by two different consultants. Throughout June and July 1980, samples were collected and analyzed by Woodward-Clyde Consultants. Forty-one samples, ranging in concentration from 0-894 mg/kg PCBs, were collected in back-filled soils along the roadways and mainline tracks and in marshes and puddles throughout the yard. An additional 35 samples, ranging in concentration from 0 to 1.68 mg/kg, were collected in split spoon samples at depths from 2 to 34 feet in 18 wells located along the perimeter and throughout the yard (see Appendix F for sample results). Except for one sample in a drum storage area of 894 mg/kg, PCB concentrations in all of the 1980 samples were below the accepted action level of 50 ppm PCBs.

On June 23 and 24, 1982, 64 samples were collected by Radiation Management Corporation and analyzed for oil and grease and PCB concentrations. Samples were obtained from one- and two-foot cores, predominantly from areas bordering Brandywine Creek, its tributary, and on-site drainage areas. Concentrations of PCBs (Aroclor 1260) ranged from less than 0.10 mg/kg to 473 mg/kg. One sample contained 1,475 mg/kg of the PCB Aroclor 1254. This concentration was detected along railroad tracks near the blacksmith shop (see Appendix G for sample results).

A third sampling was completed in late 1983. Radiation Management Corporation obtained samples on November 4, 1983, November 14, 1983, and December 1, 1983 through January 9, 1984. Samples were collected at depths of 6 or 12 inches. A total of 304 samples were gathered from locations along the perimeter of the site, in the yard, and especially in the area around the locomotive shop. PCB concentrations ranged from less than 1 mg/kg to 5770 mg/kg. Concentrations were highest along railroad tracks and in areas along the perimeter or off-site (see Appendix H for sample results).

Working with EPA Toxic Substances Control Act (TSCA) representatives, as well as other federal and state agencies, Amtrak decided to complete a removal of soils deemed PCB "hot spots." During 1984 and 1985, approximately 10,000 cubic yards of PCB-contaminated soils were removed from the facility. The clean-up area included soils in and around the locomotive shop and oil drum staging area, as well as along the mainline tracks and track area south of the locomotive shop. The total cost was approximately three million dollars. Most of the affected area is currently paved or refilled.

No other remedial action has occurred at the site.

A preliminary assessment of a 1/4-acre drum storage area associated with the WMF and located off-site, under interstate 95, was completed by the Delaware Department of Natural Resources and Environmental Control (DE DNREC) Preliminary Assessment/Site Inspection group in August 1987.

Also in 1987, the TSCA's clean-up site was revisited, and at that time, further action under the Federal Superfund program was recommended.

Liquid wastes on site are treated via a dissolved air flotation wastewater treatment system located west of car shop no. 2. The treated effluent from this system is released to the city of Wilmington sewerage system (see Appendix D).

Solid and asbestos wastes are removed to the Twelfth Street Solid Waste Authority, a sanitary landfill in Wilmington.

Waste oils are stored in a 4,000-gallon tank on site. The unhydrated oil is sold to recyclers where possible.

3. GROUNDWATER PATHWAY

3.1 Hydrogeologic Setting

Amtrak lies within the Coastal Plain Physiographic Province, which consists of unconsolidated sediments that form very gently rolling or flat plains. The site is underlain by the Quaternary age Columbia Formation, consisting of gravelly, fine to coarse sands with interbedded silts and clays. They are generally up to 10 feet thick in this area (see Figure 8).

The Cretaceous age Potomac Formation underlies the Columbia Formation and consists of variegated red, gray, purple, yellow, and white silts and clays. These silts and clays contain beds of white, gray, and rust brown quartz sands and gravels. The Potomac Formation pinches out along the northwestern edge of the site, so the thickness of the Potomac Formation is expected to be thin beneath the site.

The Precambrian age Wilmington Complex subcrops beneath the Columbia Formation along the northwestern border of the site and crops out approximately 0.1 mile north of the site. In the site area, the Wilmington Complex consists of norite,

hypersthene-quartz-andesine gneiss, and noritic anorthosite. These crystalline basement rocks are often weathered to a depth of several tens of feet. The resulting regolith is as much as 70 feet thick in some areas, but only 20-50 feet just north of the site area (see Figure 9).

The Columbia Formation, forms the water-table aquifer and is expected to be hydraulically connected with the Potomac Formation and the regolith of the Wilmington Complex. Because the Columbia Formation is only 10 feet thick in the study area, its use as an aquifer is limited.

The Potomac Formation is also thin and of little use as a source of groundwater.

The Wilmington Complex stores and transmits groundwater almost entirely within fractures; they only yield small quantities of groundwater, usually less than 10 gallons per minute.

The groundwater beneath the site is expected to flow south toward an unnamed tributary of Brandywine Creek and to the northeast to Shellpot Creek.

3.2 Groundwater Targets

The potable water supply for the study area is supplied by the city of Wilmington. It utilizes a surface water intake from the Brandywine River located approximately half a mile west of the WMF. Approximately 1,000 people live within half a mile from the site. Total population within four miles is 127,168 and the population of the City of Wilmington in 1990 was 71,529.

The location of the Amtrak site, along the Fall line (see Figure 9), where the Piedmont Province and the Coastal Plain meet, predetermines a scarcity of groundwater. It means that not only the sedimentary strata are thin, such as those of the Potomac and Columbia Formation, but that the regolith of the Piedmont Province, which occurs just north of the facility, has not enough thickness to produce much groundwater.

The Delaware DWUDS conducted a search for public and private wells within four miles of the Amtrak site. No private wells exist within that range and the closest public water supply wells are those of ICI, approximately four miles to the south. They obtain their groundwater from the Potomac aquifer, which has its recharge and subcrop area south of Wilmington, not where the Amtrak site is located. The impact of this site on these wells seems very unlikely. Not only is this area not updip from these wells, but the Potomac aquifer is probably confined.

3.3 Groundwater Conclusions

The groundwater beneath the site is not used for a public water supply.

The Amtrak site is not a source for groundwater development for the following reasons: 1) The sediments below the site are very thin; the Columbia Formation

sediments are less than ten feet thick, while the underlying Potomac Formation increases in thickness from the Fall line, which coincides with the Amtrak railroad tracks and northwest border of the property, from 0 to approximately 10-15 feet. 2) The regolith on the northwest boundary of the property has a maximum thickness of 20 feet and does not form a source of groundwater.

The nearest public water supply wells are four miles to the south, and the Amtrak site does not form a threat as a contamination source for these wells, because the wells are not down dip and the aquifer used is probably confined.

4. SURFACE WATER PATHWAY

4.1 Hydrologic Setting

A relatively flat surface across the site precludes any significant site runoff. Puddling is common throughout the yard area. Excessive runoff apparently enters either Shellpot Creek, located on the northern border of the site, or into a tributary of Brandywine Creek, which flows from east of the round house to its confluence with the Brandywine Creek. In addition, there is a ditch running parallel to the western boundary of the property, a in southerly direction toward the Brandywine Creek.

The Brandywine Creek, 2500 feet south-southwest of the round house, flows into the Christina River, which is used for recreational uses. No surface water intakes are located downstream of the site on the Brandywine Creek or the Christina River. Many tidal flats, marshes, and wetlands are located within the eastern and southern portion of the property. It is partially in the area of 100 year floods as defined by the National Flood Insurance Program, 1991, and partially in the area of the 500 year floods (see Figure 10). The National Wetlands Inventory indicates that most of the site is in an unclassified man-modified wetland, except for a palustrine semi-permanent, impounded, open water area (see Figure 11).

4.2 Surface Water Targets

The closest surface water pathway is the Brandywine Creek, which flows into the Christina River, which in turn is a tributary to the Delaware River. The annual mean flow in the Brandywine Creek, about 3.5 miles upstream from the site, is 477 ft^3/sec for the water years 1947-1991 (see Appendix I).

The Division of Fish and Wildlife published an Annual Report in 1991 titled "Stream and Inland Bays Fish Survey." The section on the tidal areas describes the fishes in the Christina and Brandywine Rivers and mentions a fishkill in the Shellpot Creek. Some of the notable species of the fish and their estimated production are mentioned in Appendix J. The lower part of the Brandywine Creek, below the Market Street bridge is used for recreational use. Approximately 1000 anglers (licensed and unlicensed) use the stream every year (see Appendix K).

4.3 Sensitive Environments and Endangered Species

The Division of Fish and Wildlife, DNREC, has the following information on listed wildlife and Sensitive Species/Sensitive Environments in the area of the Amtrak facility (see Appendix L):

1. The area has not been thoroughly inventoried.
2. The information is restricted to wildlife species.
3. The Shortnose Sturgeon and the Peregrine Falcon are both on the State and Federal endangered list.
4. Several Egret and Heron species are included in the top two rankings of the Natural Heritage list, which means that there are few remaining individuals which make them vulnerable in Delaware.

4.4 Surface Water Conclusions

It seems that the soils and waters of the site were heavily polluted with PCB's and metals in the past. Even after removal of the so called PCB "hot spots" many very contaminated areas remain. Particularly in the area of the railroad tracks, south of the round house, there has been a considerable release of waste over an extended period of time. Most of this waste seems to discharge as run-off to the surface waters and as shallow groundwater seepage.

The contamination of the soils is evident in the condition of the vegetation; many barren stretches occur and the wetlands seem stressed.

5. SOIL EXPOSURE AND AIR PATHWAYS

5.1 Physical Conditions

According to the U.S. Department of Agriculture, Soil Conservation Service, the site is located in the Othello-Fallsington-Urban land complex. It consists of poorly drained, nearly level Othello and Fallsington soils that have been used for residential, commercial, and industrial development. Much of it has been covered with as much as 18 inches of fill material. Although this unit has often been artificially drained, seasonal wetness and a high water table limit its suitability for building sites.

5.2 Soil and Air Targets

Soil exposure pathway could be limited to workers for Amtrak.

Air pathway targets within the four-mile radius area total 127,168.

The Delaware Natural Heritage Inventory has reviewed its database of species of special concern for the above site. As of this date, we are aware of only four

historical records for rare plants, occurring within two miles of the site. These records date as far back as 1886. The likelihood that they will be rediscovered in the impacted area is slim. However, an annual survey is conducted for these species along the Delaware River shoreline. The rare plant species include: *Eriocaulon parkeri*, *Bidens bidentoides*, *Aeschynomene virginica*, *Paspalum dissectum*. Again, it is unlikely that these will be rediscovered within the project limits.

5.3 Soil Exposure and Air Pathway Conclusion

Based on the currently available information, it appears that air pathways may not be a concern, but soil exposure can be a possible pathway depending on the amount of suspected contaminant.

6. SUMMARY AND CONCLUSIONS

The Amtrak Wilmington Refueling Facility is an active railyard. The 85 acre site is utilized for the maintenance, repair and overhaul of locomotives and passenger railcars. Strict guidelines exist for the maintenance of polychlorinated biphenyl (PCB) contaminated transformers. In addition, a negative pressure sealed facility was constructed for asbestos abatement in railcars. No hazardous wastes, except for sulfuric acid, are continuously stored on site. All PCB contaminated oils are drummed and removed by private recyclers and buyers. Asbestos waste is wetted, bagged, and removed to a sanitary landfill.

Amtrak holds a NPDES permit for surface water run-off in Shellpot Creek and a tributary of the Brandywine Creek. In addition, Amtrak holds a small quantity EPA Hazardous Waste Permit, and a large quantity RCRA permit. It is not considered a treatment, storage, and disposal facility.

Amtrak has been the subject of a previous investigation (PA TDD No. F3-8808-S4, EPA No. DE-170). At that time, 400 samples of property soils were collected and analyzed between June, 1980, and January, 1984, by two private firms. As a result, approximately 10,000 cubic yards of contaminated soils were removed from "hot spots" in the yard.

A site inspection in March, 1993, showed soil contamination over a large area.

It is evident that contamination in the form of heavy metals, waste oils, Polycyclic Aromatic Hydrocarbons, creosote products and potentially other contaminants are present in significant amounts both in the ground and in the surface water drainage canals located on the southern portion of the physical plant. This area is quite large (at least seven acres) and it appears that a lot of vegetation is stressed or non-existent.

Based upon these findings, the Superfund Branch of DNREC strongly recommends that further action/investigation occur at the Amtrak facility.

Preliminary Assessment Report
Amtrak Wilmington Refueling Facility
February, 1993

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FIGURES

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- Appendix D. NPDES Data for Outfalls 001, 002A, 1987-1992
- Appendix E. Analyses of Waste Water Discharge Samples, 1987, 1988, City of Wilmington
- Appendix F. Telephone Log of Conversation with Merrit Tappan, Wilmington Sewer Discharge Plant
- Appendix G. Concentration of PCB's in Soils, 1980, Woodward-Clyde
- Appendix H. Results of Oil and Grease and PCB Determinations on Soil Samples, 1982, Radiation Management Corp.
- Appendix I. Results of Analysis Performed on Soil Samples, 1983, Radiation Management Corp.
- Appendix J. Discharge of the Brandywine Creek at Wilmington, DE, 1947-1991.
- Appendix K. Stream and Inland Bays Fish Survey, 1986. Annual Report, Division of Fish and Wildlife.
- Appendix L. Letter from Craig A. Shirey, Division of Fish and Wildlife, 1993.
- Appendix M. Threatened, Endangered and Other Wildlife Species Of Potential Conservation Concern, Division of Fish and Wildlife, 1993.

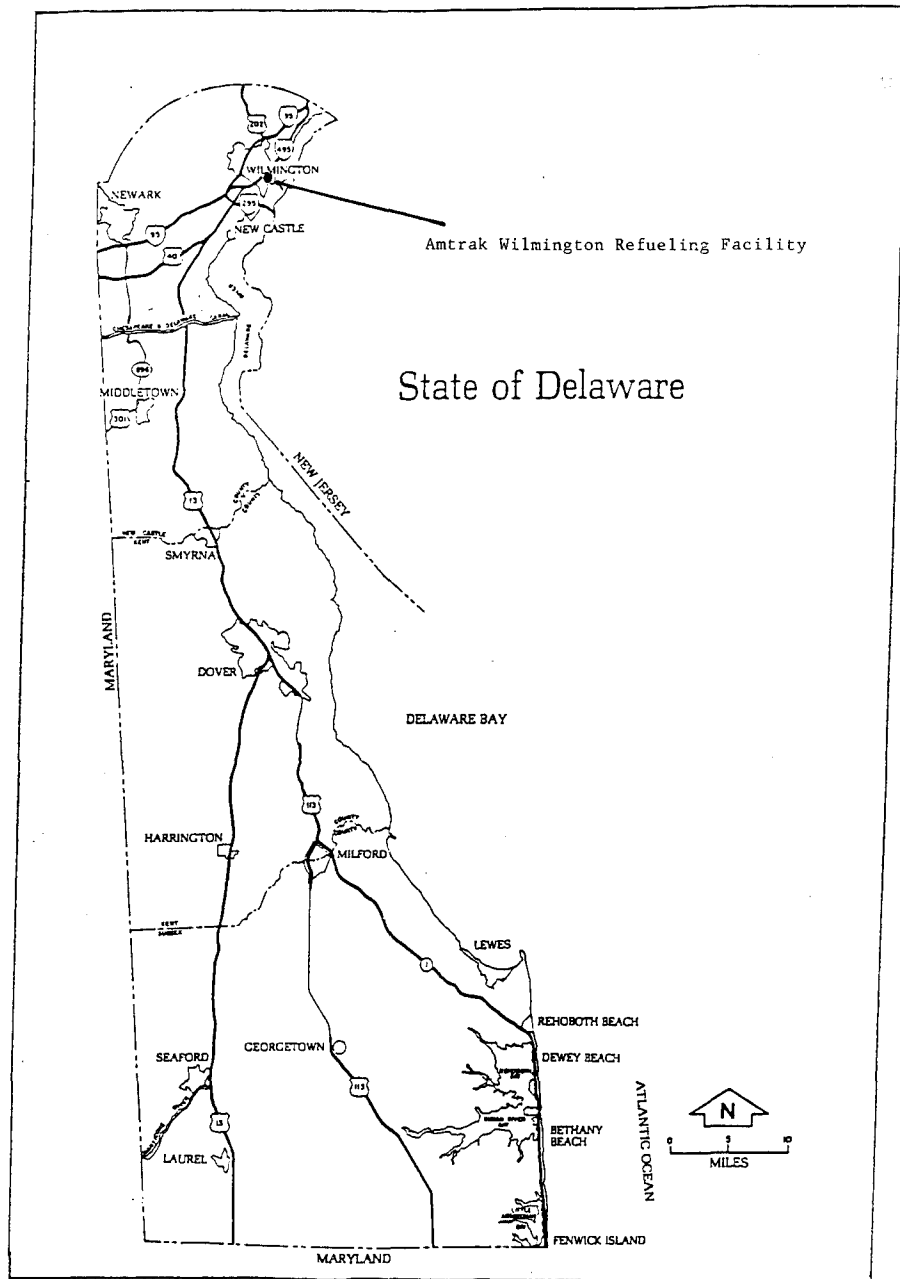


Figure 1. Location of Amtrak Facility in Delaware.

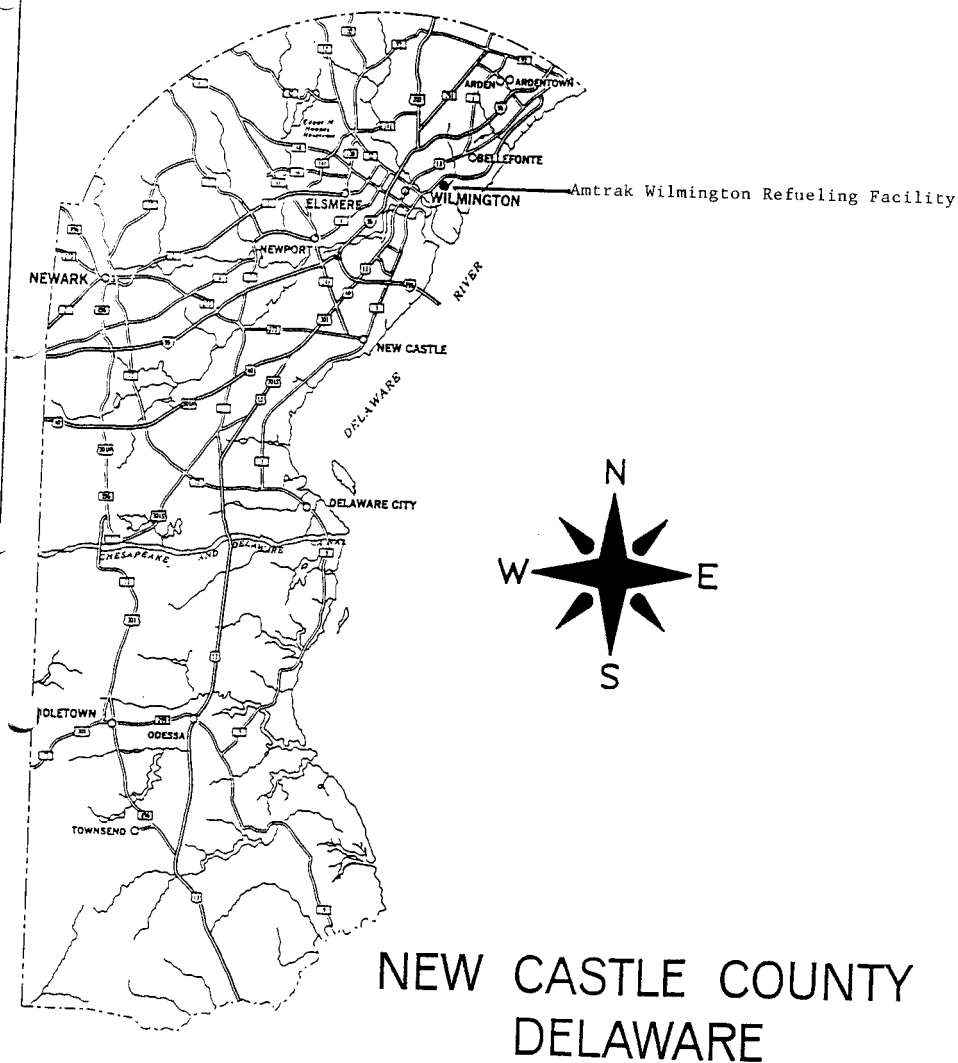
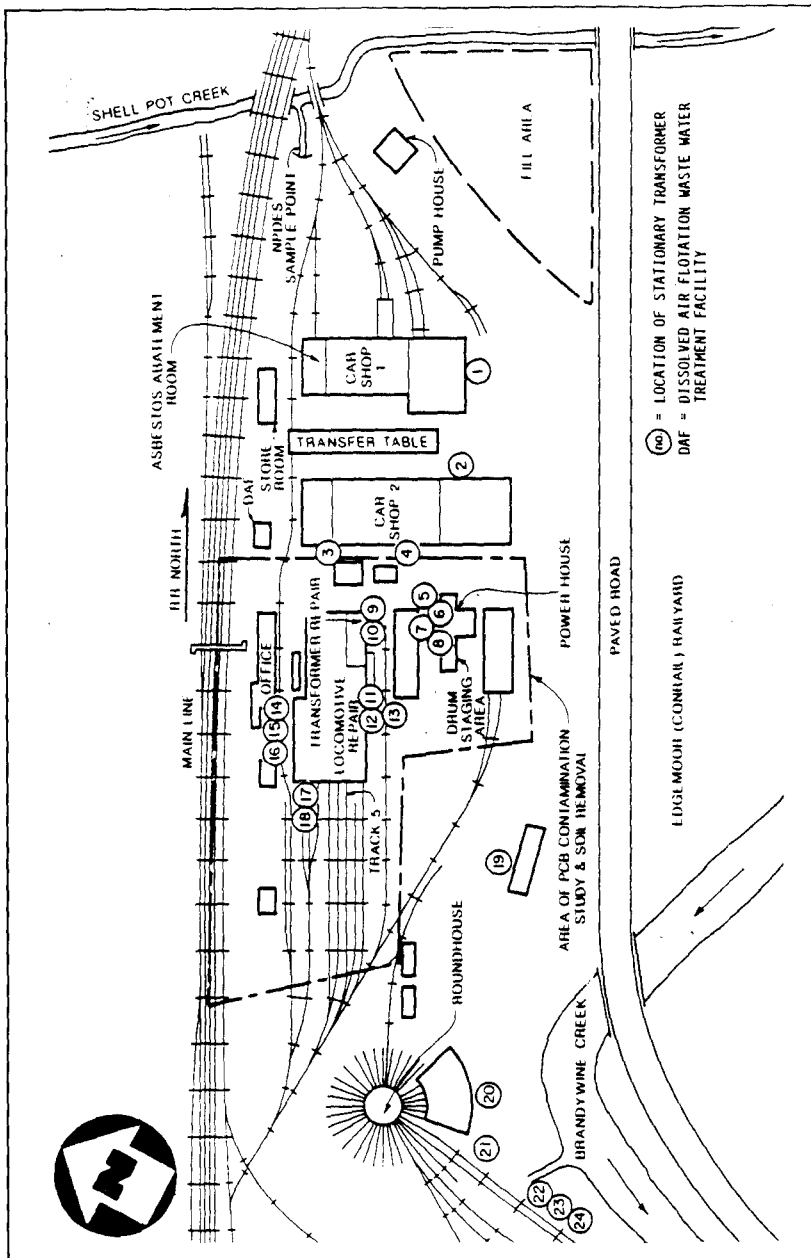


Figure 2. Location of Amtrak Facility in New Castle County.



ORIGINAL
(Red)

Figure 4. Site Sketch of Amtrak Facility Studied in First Preliminary Assessment. (No Scale)

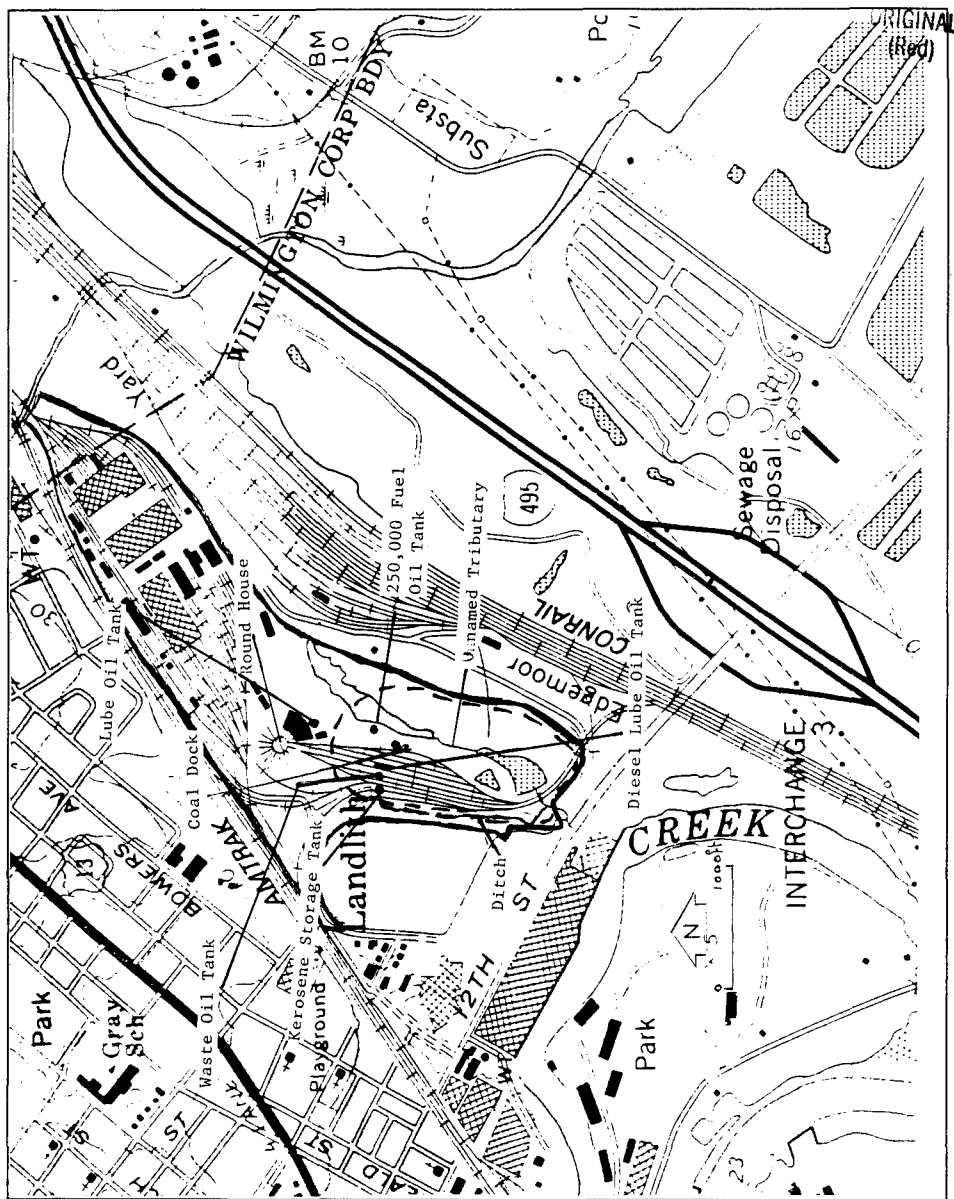


Figure 5. Area of Amtrak Facility in New Investigation.

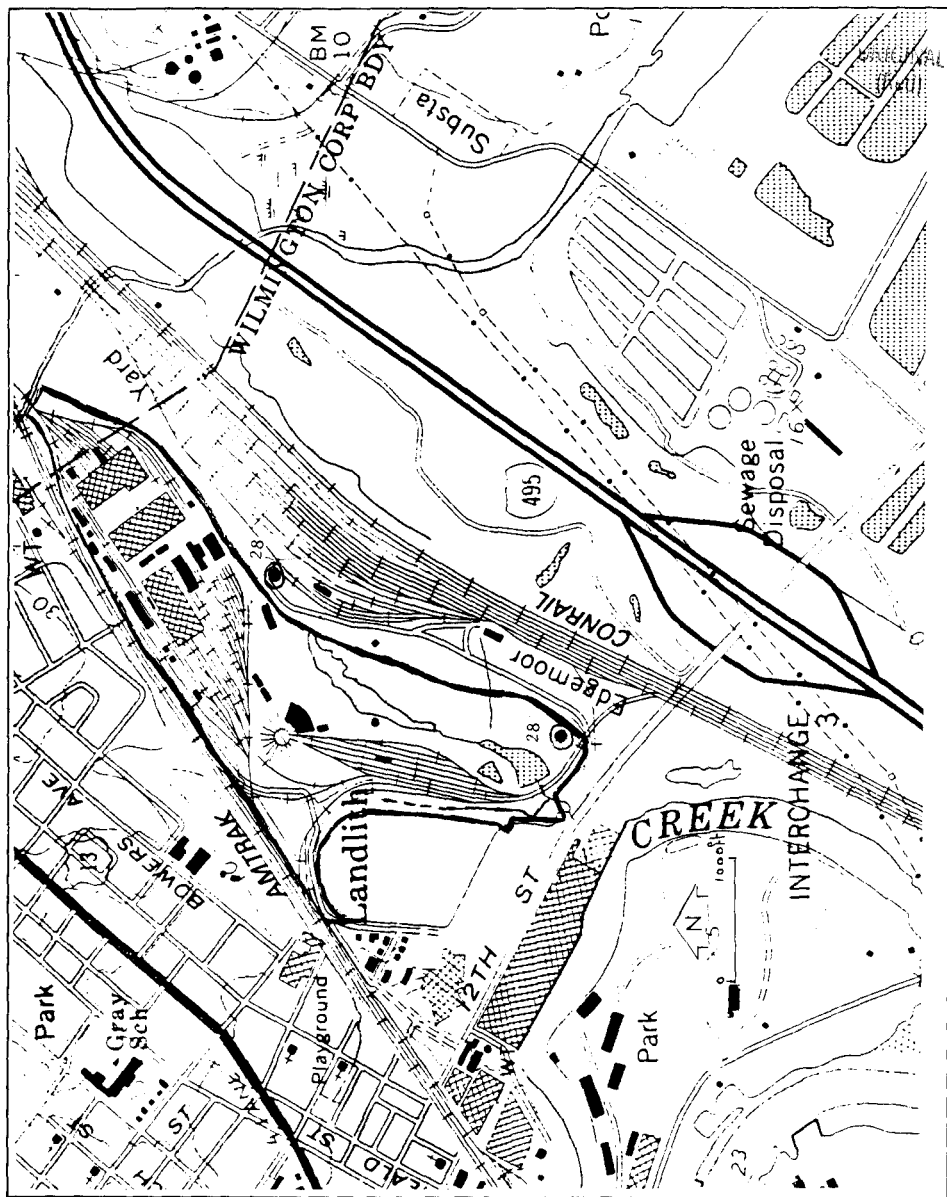


Figure 6. No. 28 Approximate Locations of the Philadelphia-Wilmington-Baltimore Railroad Company (from Baist, 1901).

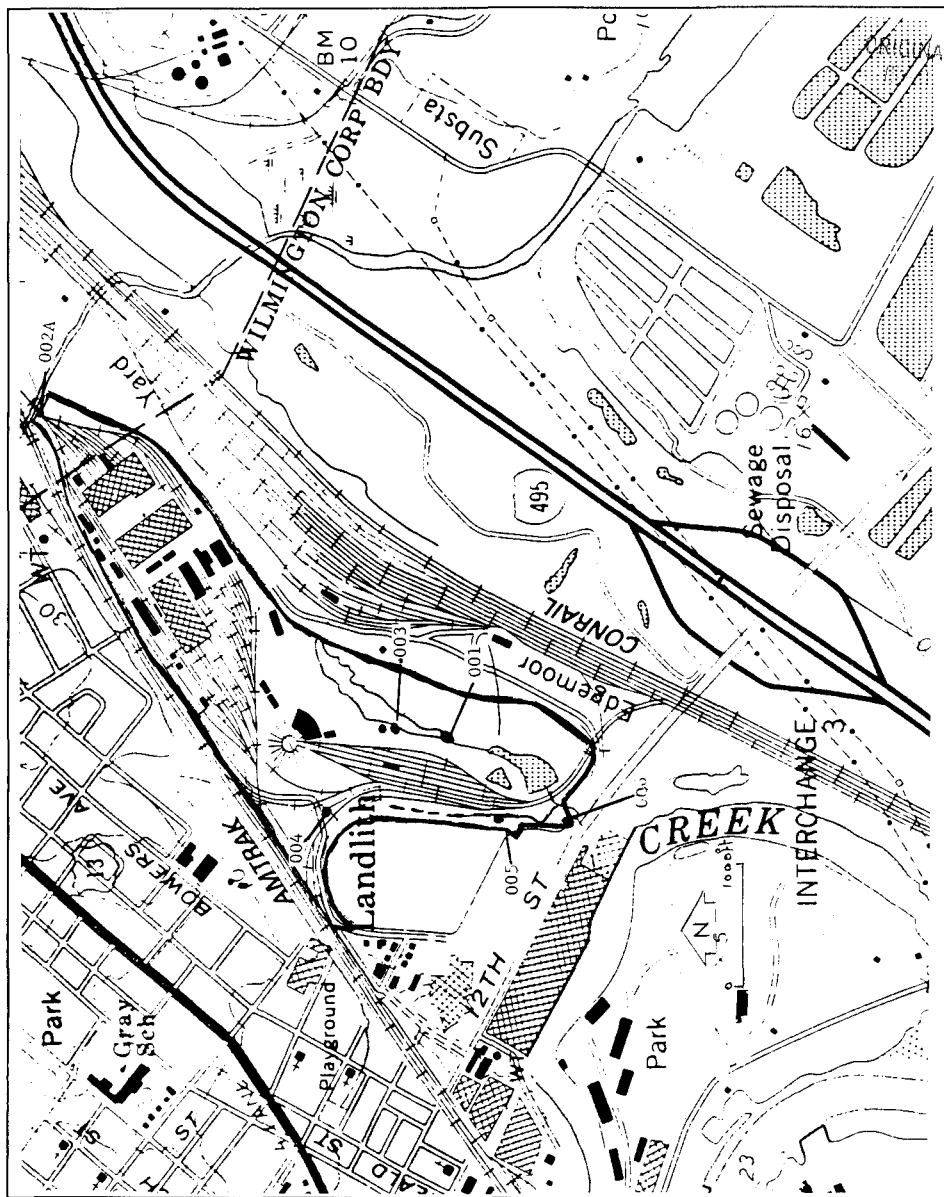


Figure 7. National Pollutant Discharge Elimination System Monitoring Points.

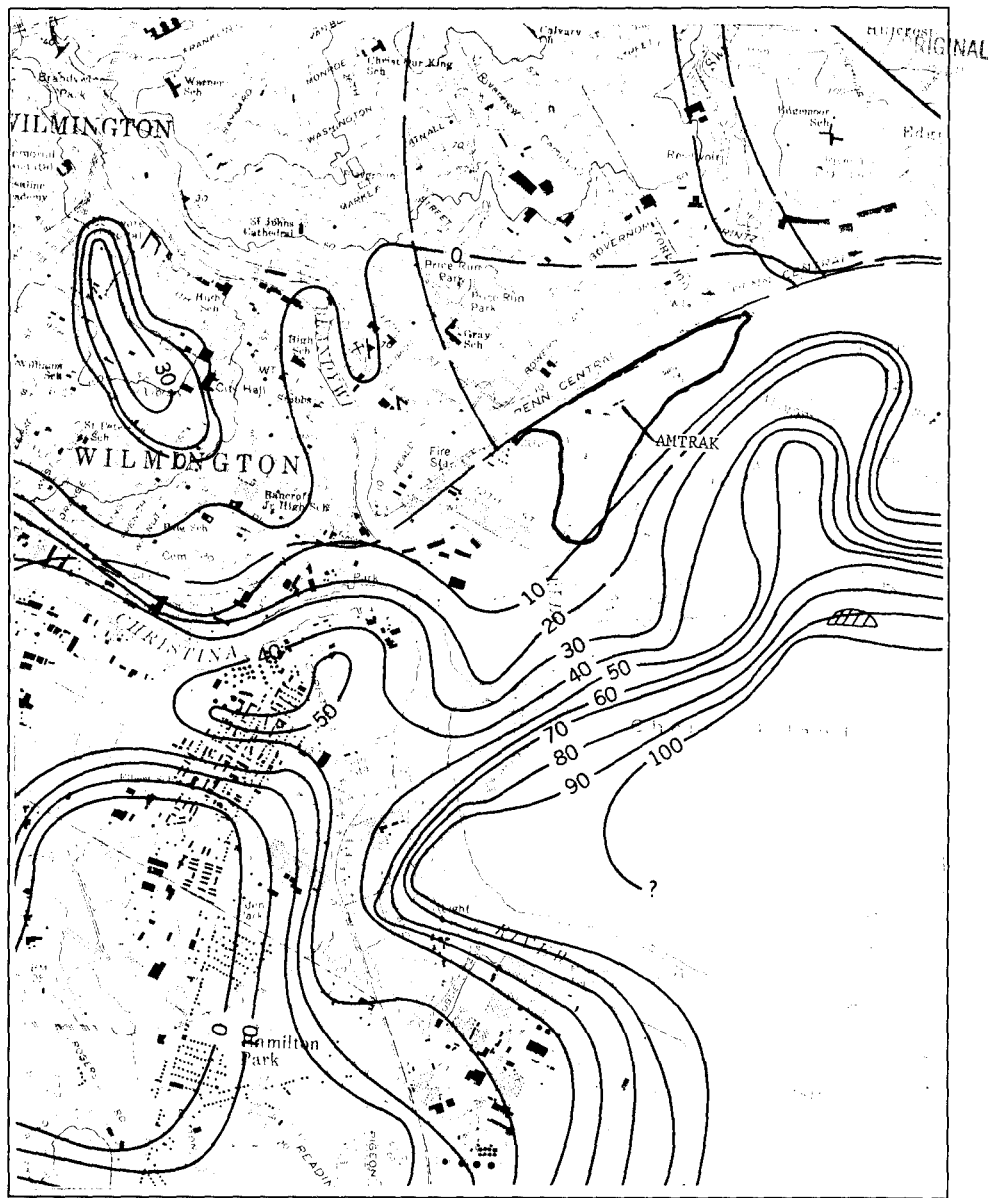
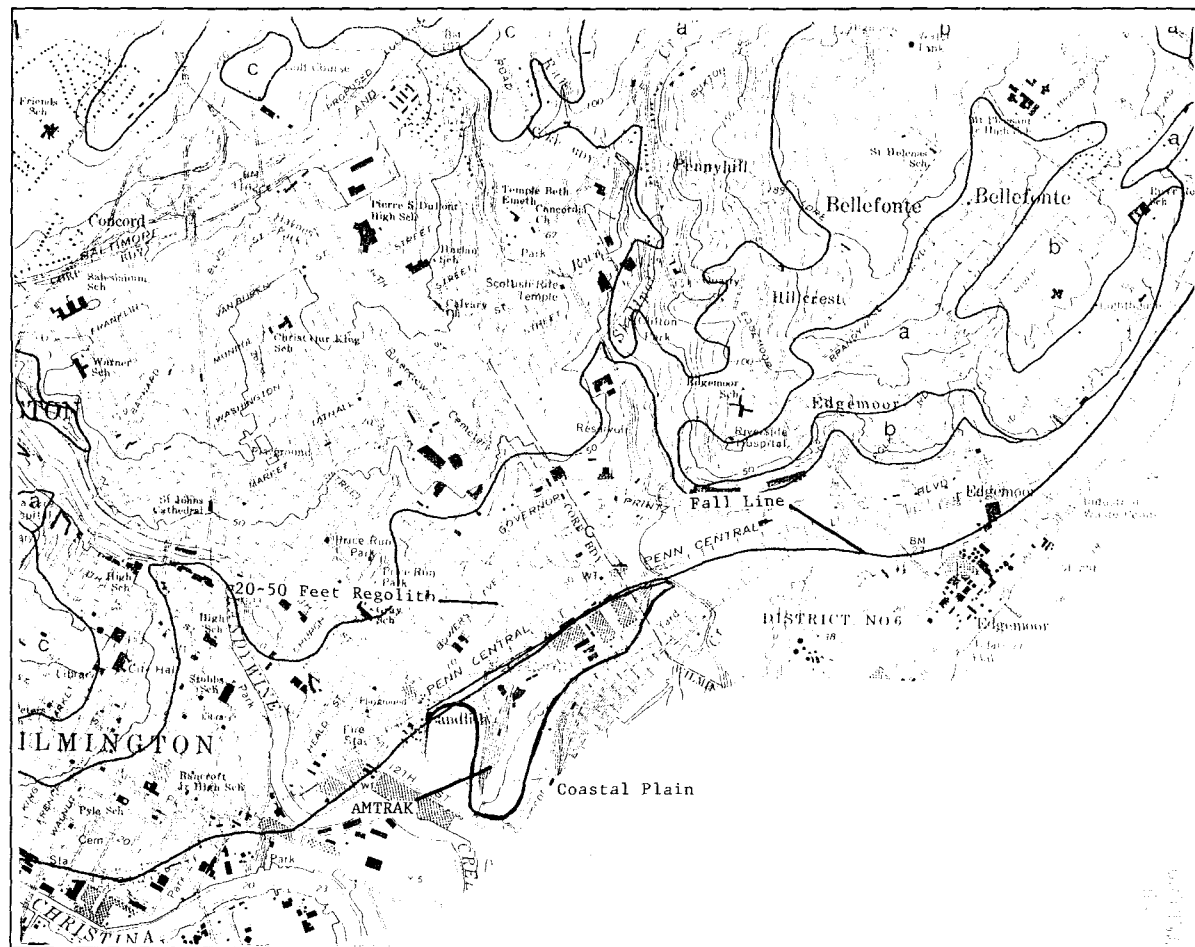


Figure 8. Thickness of the Quaternary Sediments (Feet) (from Geology of the Wilmington Area Delaware, DGS 1975).

Figure 9. Thickness of the Regolith in the Delaware Piedmont (from M.J. Christopher and K.D. Woodruff, Delaware Geological Survey, 1982).



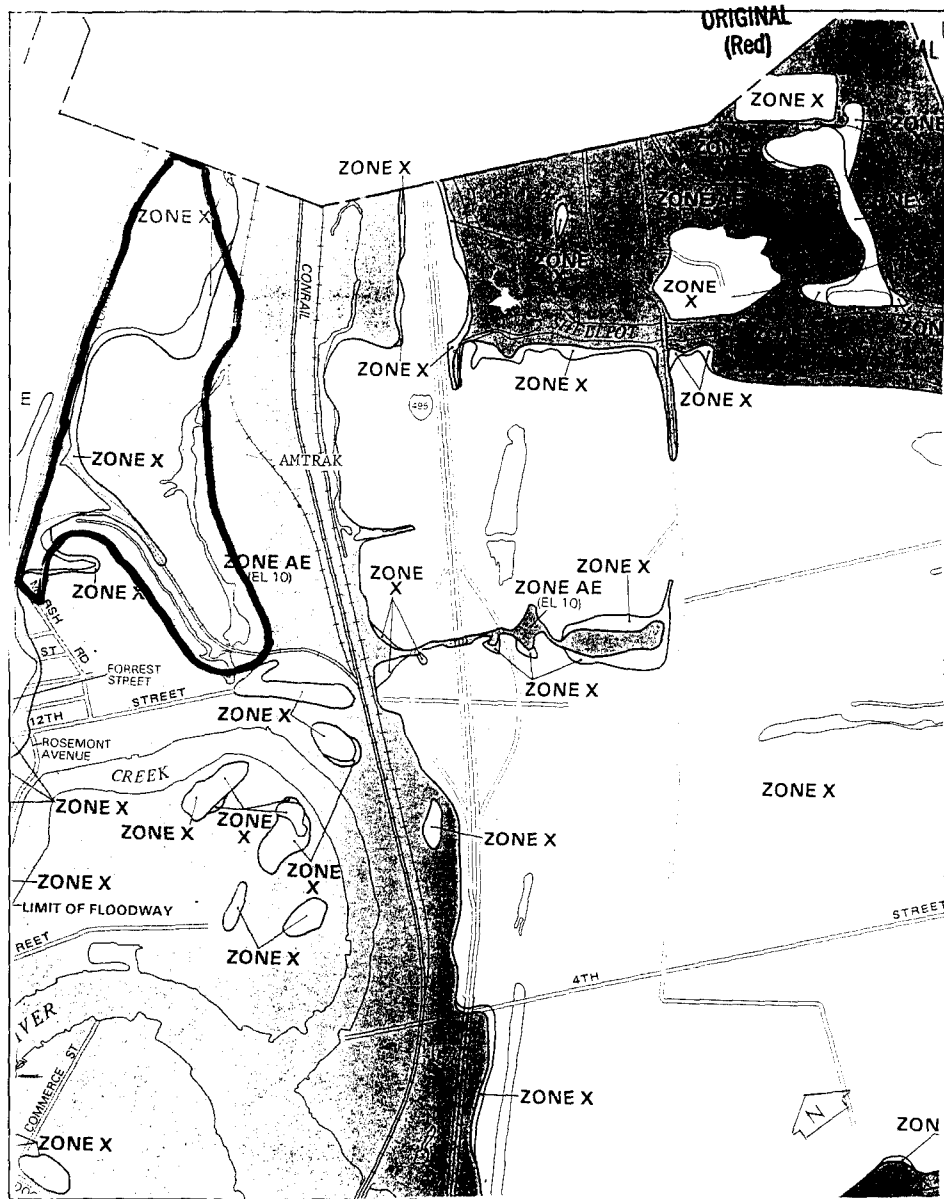


Figure 10. Flood Insurance Rate Map. Zone X - Area of 500 Year Flood.
 Zone AE - Area of 100 Year Flood.
 (From National Flood Insurance Program, 1991.)

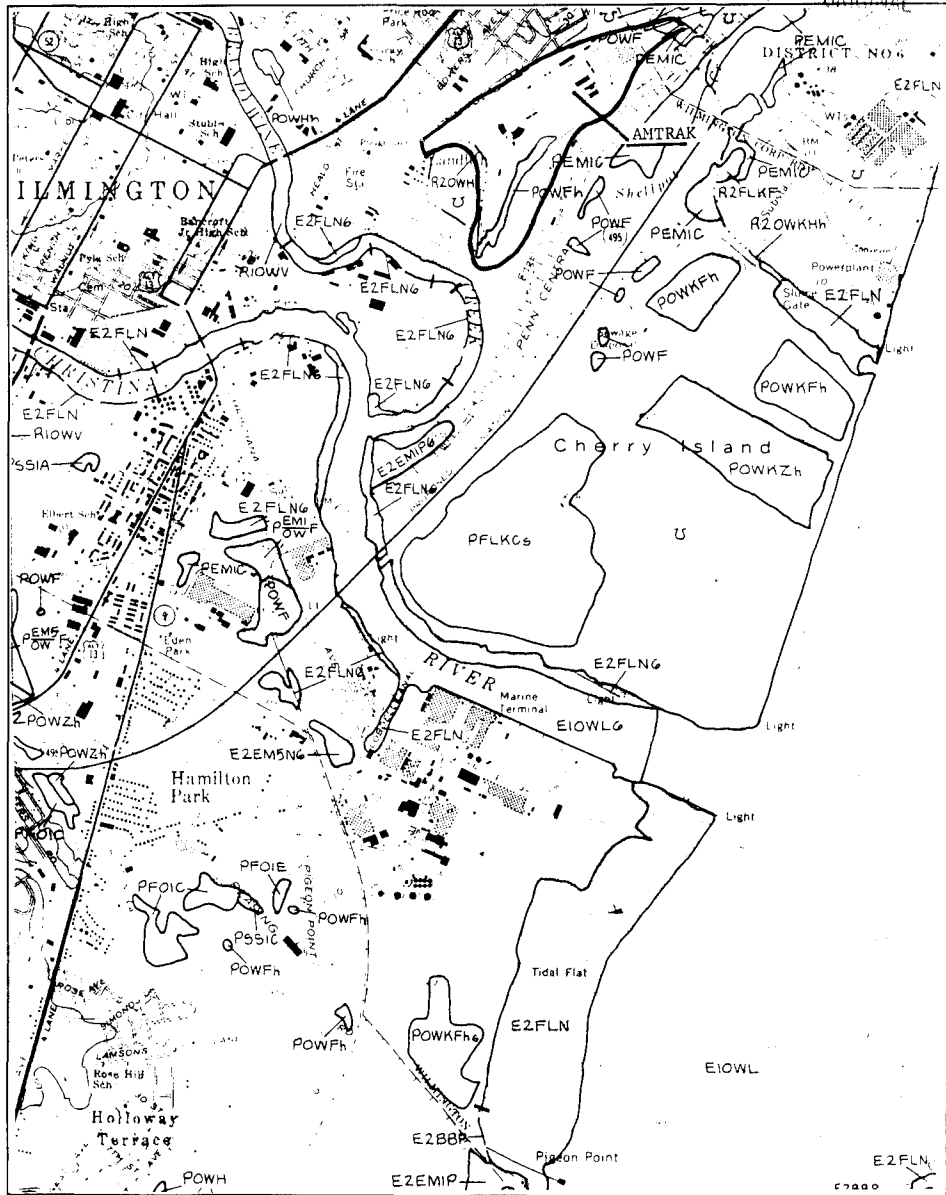


Figure 11. National Wetlands Inventory, U.S. Department of Interior.

U - Unclassified Wetlands, such as Man-Modified Areas.

POWFh - Palustrine, Semi-Permanent, Impounded Open Water.

Preliminary Assessment Report
Amtrak Wilmington Refueling Facility
February, 1983

APPENDIX A

PHOTO DOCUMENTATION LOG

ORIGINAL
(2-8-81)

1. Picture of the coal tower with the diesel fuel tank in the background. Note the trash lying around the petroleum stained soil.
2. Picture of an oil stained wetland area. Booms can be seen in the background. Note the indiscriminate trash in the foreground.
3. Picture of the area where railroad tank cars (buried) were removed. Note the indiscriminate trash and the red colored, clean fill soil.
4. Picture of a wetland area with booms. Note the oil stained soil.
5. Picture of an outflow pipe with brown film coming out. This flows to the unnamed tributary.
6. Picture of the unnamed tributary. Booms for leachate control are placed at the outfalls of the stream. These booms are replaced weekly.
7. Picture of a polluted wetland area. Note the channels of pollution draining into the unnamed tributary.
8. Picture of a trash pile. Note the dark colored soil around the pile located beside the ditch.
9. Picture of a ditch with booms. Note the red color of the water.
10. Picture of the ditch with reddish color water throughout the ditch. Note the wooden spools in the water.

EPA REGION III
SUPERFUND DOCUMENT MANAGEMENT SYSTEM

DOC ID # 431417
PAGE # _____

IMAGERY COVER SHEET
UNSCANNABLE ITEM

Contact the CERCLA Records Center to view this document.


SITE NAME AMTRAK WILMINGTON REFUELING FACILITY
OPERABLE UNIT 00
SECTION/BOX/FOLDER 1C BOX 1.001

REPORT OR DOCUMENT TITLE Preliminary Assessment
DATE OF DOCUMENT 02/01/93
DESCRIPTION OF IMAGERY photographic log
NUMBER AND TYPE OF IMAGERY ITEM(S) 5 pgs. of photographs

ORIGINAL
(Red)

Preliminary Assessment Report
Amtrak Wilmington Refueling Facility
February, 1993

APPENDIX B

 Potential Hazardous Waste Site Preliminary Assessment Form		Identification	
		State: DE	CERCLIS Number: DE-170
		CERCLIS Discovery Date:	
1. General Site Information			
Name: Amtrak Wilmington Refueling Fac.		Street Address: 12th Street & Shellpot Creek	
City: Wilmington	State: DE	Zip Code: 19802	Co. Code: New Castle
Latitude: 39° 44' 49. " N		Longitude: 75° 31' 20. " W	
Approximate Area of Site: 85 Acres		Status of Site:	
_____ Square Ft		<input checked="" type="checkbox"/> Active <input type="checkbox"/> Not Specified <input type="checkbox"/> Inactive <input type="checkbox"/> NA (GW plume, etc.)	
2. Owner/Operator Information			
Owner: National Railroad Passenger Corp.		Operator: J. Robert Duncan	
Street Address:		Street Address: 4001 Vandever Avenue	
City: Washington		City: Wilmington	
State: DC	Zip Code:	State: DE	Zip Code: 19802
Telephone: ()		Telephone: (302) 429-6397	
Type of Ownership:		How Initially Identified:	
<input checked="" type="checkbox"/> Private <input type="checkbox"/> Federal Agency <input type="checkbox"/> State <input type="checkbox"/> Indian		<input type="checkbox"/> County <input type="checkbox"/> Municipal <input type="checkbox"/> Not Specified <input type="checkbox"/> Other	
		<input type="checkbox"/> Crime Complaint <input checked="" type="checkbox"/> PA Petition <input type="checkbox"/> State/Local Program <input type="checkbox"/> RCRA/CERCLA Notification	
		<input type="checkbox"/> Federal Program <input type="checkbox"/> Incidental <input type="checkbox"/> Not Specified <input type="checkbox"/> Other	
3. Site Evaluator Information			
Name of Evaluator: Catharina R. Groot		Agency/Organization: DE DNREC	
		Date Prepared: February 1993	
Street Address: 715 Grantham Lane		City: New Castle	
		State: DE	
Name of EPA or State Agency Contact: Mike Giuranna		Street Address: 841 Chestnut Building	
City: Philadelphia		State: PA	
		Telephone: (215) 597-3165	
4. Site Disposition (for EPA use only)			
Emergency Response/Removal Assessment Recommendation:		CERCLIS Recommendation:	
<input type="checkbox"/> Yes <input type="checkbox"/> No Date:		<input type="checkbox"/> Higher Priority SI <input type="checkbox"/> Lower Priority SI <input type="checkbox"/> NFRA <input type="checkbox"/> RCRA <input type="checkbox"/> Other Date:	
		Signature:	
		Name (typed):	
		Position:	



Potential Hazardous Waste Site
Preliminary Assessment Form - Page 2 of 4

CERCLIS Number:

DE-170

5. General Site Characteristics

Predominant Land Uses Within 1 Mile of Site (check all that apply):
☒ Industrial ☐ Agriculture ☐ DOI
☐ Commercial ☐ Mining ☐ Other Federal Facility
☐ Residential ☐ DOD ☐ Other _____
☐ Forest/Fields ☐ DOE ☐ Other _____

Site Setting:

☒ Urban
☐ Suburban
☐ Rural

Years of Operations:

Beginning Year 1976

Ending Year 1993

☐ Unknown

Type of Site Operations (check all that apply):

☐ Manufacturing (must check subcategory)

☐ Lumber and Wood Products
☐ Inorganic Chemicals
☐ Plastic and/or Rubber Products
☐ Paints, Varnishes
☐ Industrial Organic Chemicals
☐ Agricultural Chemicals
(e.g., pesticides, fertilizers)
☐ Miscellaneous Chemical Products
(e.g., adhesives, explosives, ink)
☐ Primary Metals
☐ Metal Coating, Fining, Engraving
☐ Metal Forging, Stamping
☐ Fabricated Structural Metal Products
☐ Electronic Equipment
☐ Other Manufacturing

☐ Mining

☐ Metals
☐ Coal
☐ Oil and Gas
☐ Non-metallic Minerals

☐ Retail

☐ Recycling
☐ Junk/Scrap Yard
☐ Municipal Landfill
☐ Other Landfill
☐ DOD
☐ DOE
☐ DOI
☐ Other Federal Facility _____
☐ RCRA

☐ Treatment, Storage, or Disposal

☒ Large Quantity Generator
☐ Small Quantity Generator
☐ Subtitle D
☐ Municipal
☐ Industrial
☐ "Converter"
☐ "Protective Filter"
☐ "Non- or Late Filter"

☐ Not Specified

☒ Other Maintenance of
locomotives and railcars

Waste Generated:

☒ Onsite
☐ Offsite
☐ Onsite and Offsite

Waste Disposition Authorized By:

☐ Present Owner
☐ Former Owner
☒ Present & Former Owner
☐ Unauthorized
☐ Unknown

Waste Accessible to the Public:

☒ Yes
☐ No

Distance to Nearest Dwelling,
School, or Workplace:

300 Feet

6. Waste Characteristics Information

Source Type:
(check all that apply)

☐ Landfill
☐ Surface Impoundment
☐ Drums
☐ Tanks and Non-Drum Containers
☐ Chemical Waste Pile
☐ Scrap Metal or Junk Pile
☐ Tailings Pile
☐ Truck Pile (open dump)
☐ Land Treatment
☐ Contaminated Ground Water Phase
(unidentified source)
☒ Contaminated Surface Water/Sediment
(unidentified source)
☒ Contaminated Soil
☐ Other _____
☐ No Source

Source Waste Quantity:
(include units)

Tier ²:

General Types of Waste (check all that apply)

☒ Metals ☐ Pesticides/Herbicides
☒ Organics ☐ Acids/Bases
☒ Inorganics ☐ Oily Waste
☒ Solvents ☐ Municipal Waste
☐ Paint/Pigment ☐ Mining Waste
☐ Laboratory/Hospital Waste ☐ Explosives
☐ Radioactive Waste ☐ Other _____
☐ Construction/Demolition
Waste

Physical State of Waste as Deposited (check all that
apply):

☒ Solid ☐ Sludge ☐ Powder
☒ Liquid ☐ Gas

² C = Contaminant, W = Waterstream, V = Volume, A = Area



Potential Hazardous Waste Site
Preliminary Assessment Form - Page 3 of 4

CERCLIS Number:

DE-170

7. Ground Water Pathway

Is Ground Water Used for Drinking Water Within 4 Miles:

- ☐ Yes
☒ No

Type of Drinking Water Wells Within 4 Miles (check all that apply):

- ☐ Municipal
☐ Private
☒ None

Is There a Suspected Release to Ground Water:

- ☒ Yes
☐ No

Have Primary Target Drinking Water Wells Been Identified:

- ☐ Yes
☒ No

If Yes, Enter Primary Target Population:

_____ People

List Secondary Target Population Served by Ground Water Withdrawn From:

0 - 1/4 Miles _____ 0

> 1/4 - 1/2 Miles _____ 0

> 1/2 - 1 Miles _____ 0

> 1 - 2 Miles _____ 0

> 2 - 3 Miles _____ 0

> 3 - 4 Miles _____ 0

Total Within 4 Miles _____

Depth to Shallowest Aquifer:

_____ 5 Feet

Karst Terrain/Aquifer Present:

- ☐ Yes
☒ No

Nearest Designated Wellhead Protection Area:

- ☐ Underline Site
☐ > 0 - 4 Miles
☒ None Within 4 Miles

8. Surface Water Pathway

Type of Surface Water Draining Site and 15 Miles Downstream (check all that apply):

- ☒ Stream ☒ River ☒ Pond ☐ Lake
☐ Bay ☐ Ocean ☐ Other _____

Shortest Overland Distance From Any Source to Surface Water:

_____ 0 Feet

_____ Miles

Is There a Suspected Release to Surface Water:

- ☒ Yes
☐ No

Site is Located in:

- ☐ Annual - 10 yr Floodplain
☐ > 10 yr - 100 yr Floodplain
☒ > 100 yr - 500 yr Floodplain
☐ > 500 yr Floodplain

Drinking Water Intakes Located Along the Surface Water Migration Path:

- ☐ Yes
☒ No

Have Primary Target Drinking Water Intakes Been Identified:

- ☐ Yes
☒ No

If Yes, Enter Population Served by Primary Target Intakes:

_____ People

List All Secondary Target Drinking Water Intakes:

Name	Water Body	Flow (cfs)	Population Served
Brandywine Creek		477	71529
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Total within 15 Miles _____

Fisheries Located Along the Surface Water Migration Path:

- ☒ Yes
☐ No

Have Primary Target Fisheries Been Identified:

- ☐ Yes
☒ No

List All Secondary Target Fisheries:

Water Body/Fishery Name	Flow (cfs)
Brandywine Creek	477
_____	_____
_____	_____
_____	_____

EPA	Potential Hazardous Waste Site Preliminary Assessment Form - Page 4 of 4	CERCLIS Number: DE-170
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8. Surface Water Pathway (continued)

Wetlands Located Along the Surface Water Migration Path: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Have Primary Target Wetlands Been Identified: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No List Secondary Target Wetlands: <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black;">Wetland Body</th> <th style="text-align: left; border-bottom: 1px solid black;">Flow (cfs)</th> <th style="text-align: left; border-bottom: 1px solid black;">Proximity Miles</th> </tr> </thead> <tbody> <tr><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>_____</td><td>_____</td><td>_____</td></tr> </tbody> </table>	Wetland Body	Flow (cfs)	Proximity Miles	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	_____	Other Sensitive Environments Located Along the Surface Water Migration Path: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Have Primary Target Sensitive Environments Been Identified: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No List Secondary Target Sensitive Environments: <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black;">Water Body</th> <th style="text-align: left; border-bottom: 1px solid black;">Flow (cfs)</th> <th style="text-align: left; border-bottom: 1px solid black;">Sensitive Environment Type</th> </tr> </thead> <tbody> <tr> <td style="border-bottom: 1px solid black;">Brandywine Creek 477</td> <td style="border-bottom: 1px solid black;"></td> <td style="border-bottom: 1px solid black;">Fish, Birds</td> </tr> <tr><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>_____</td><td>_____</td><td>_____</td></tr> </tbody> </table>	Water Body	Flow (cfs)	Sensitive Environment Type	Brandywine Creek 477		Fish, Birds	_____	_____	_____	_____	_____	_____	_____	_____	_____
Wetland Body	Flow (cfs)	Proximity Miles																													
_____	_____	_____																													
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Water Body	Flow (cfs)	Sensitive Environment Type																													
Brandywine Creek 477		Fish, Birds																													
_____	_____	_____																													
_____	_____	_____																													
_____	_____	_____																													

9. Soil Exposure Pathway

Are People Occupying Residences or Attending School or Daycare on or Within 200 Feet of Areas of Known or Suspected Contamination: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, Enter Total Resident Population: _____ People	Number of Workers Onsite: <input type="checkbox"/> None <input type="checkbox"/> 1 - 100 <input checked="" type="checkbox"/> 101 - 1,000 <input type="checkbox"/> > 1,000	Have Terrestrial Sensitive Environments Been Identified on or Within 200 Feet of Areas of Known or Suspected Contamination: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If Yes, List Each Terrestrial Sensitive Environment: _____ _____
--	--	---

10. Air Pathway

Is There a Suspected Release to Air: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Enter Total Population on or Within: <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 40%;">Onsite</td> <td style="text-align: right; border-bottom: 1px solid black;">0</td> </tr> <tr> <td>0 - 1/4 Mile</td> <td style="text-align: right; border-bottom: 1px solid black;">776</td> </tr> <tr> <td>> 1/4 - 1/2 Mile</td> <td style="text-align: right; border-bottom: 1px solid black;">2011</td> </tr> <tr> <td>> 1/2 - 1 Mile</td> <td style="text-align: right; border-bottom: 1px solid black;">9874</td> </tr> <tr> <td>> 1 - 2 Miles</td> <td style="text-align: right; border-bottom: 1px solid black;">37445</td> </tr> <tr> <td>> 2 - 3 Miles</td> <td style="text-align: right; border-bottom: 1px solid black;">38853</td> </tr> <tr> <td>> 3 - 4 Miles</td> <td style="text-align: right; border-bottom: 1px solid black;">38207</td> </tr> <tr> <td>Total Within 4 Miles</td> <td style="text-align: right; border-bottom: 1px solid black;">127166</td> </tr> </table>	Onsite	0	0 - 1/4 Mile	776	> 1/4 - 1/2 Mile	2011	> 1/2 - 1 Mile	9874	> 1 - 2 Miles	37445	> 2 - 3 Miles	38853	> 3 - 4 Miles	38207	Total Within 4 Miles	127166	Wetlands Located Within 4 Miles of the Site: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Other Sensitive Environments Located Within 4 Miles of the Site: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No List All Sensitive Environments Within 1/4 Mile of the Site: <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black;">Distance</th> <th style="text-align: left; border-bottom: 1px solid black;">Sensitive Environment Type/Wetlands Area (acres)</th> </tr> </thead> <tbody> <tr> <td style="border-bottom: 1px solid black;">Onsite</td> <td style="border-bottom: 1px solid black;"></td> </tr> <tr> <td style="border-bottom: 1px solid black;">0 - 1/4 Mile</td> <td style="border-bottom: 1px solid black;"></td> </tr> <tr> <td style="border-bottom: 1px solid black;">> 1/4 - 1/2 Mile</td> <td style="border-bottom: 1px solid black;"></td> </tr> </tbody> </table>	Distance	Sensitive Environment Type/Wetlands Area (acres)	Onsite		0 - 1/4 Mile		> 1/4 - 1/2 Mile	
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> 1/4 - 1/2 Mile																									

Preliminary Assessment Report
Amtrak Wilmington Refueling Facility
February, 1993

200-1-1-1
(Red)

APPENDIX C



ORIGINAL
10/23

STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
& ENVIRONMENTAL CONTROL
DIVISION OF WATER RESOURCES
89 KINGS HIGHWAY, P.O. BOX 1401
DOVER, DELAWARE 19903

SURFACEWATER MANAGEMENT SECTION
WATERSHED ASSESSMENT BRANCH
POLLUTION CONTROL BRANCH
FACILITY SUPPORT BRANCH
WETLANDS & AQUATIC PROTECTION BRANCH

(302) 739 - 5726
(302) 739 - 4590
(302) 739 - 5731
(302) 739 - 5081
(302) 739 - 4691

The Nation Railroad Passenger Corporation
Wilmington Maintenance Facility
4001 Vandever Ave.
Wilmington, DE 19802

The National Railroad Passenger Corporation (Amtrak), Wilmington Maintenance Facility has applied for reissuance of its National Pollutant Discharge Elimination System (NPDES) permit to discharge storm water run-off.

Facility Location

This facility is located west of I-495, closer to 12th Street, on 4001 Vandever Avenue in Wilmington.

Activity Description

The National Railroad Passenger Corporation (Amtrak) is a National Corporation. Their central Headquarters is in Washington, D.C. Major activities of the Wilmington Amtrak facility are overhauling, rebuilding, and repairing of electronic and diesel locomotives, and electric cars. Major operations include fueling and vapor degreasing of parts and engines. Engine parts are cleaned in a Proceco Washer with steam and detergent, and the effluent from the Proceco Washer is treated in treatment plant and then discharged to the city sewer system.

Statutory and Regulatory Basis

The Delaware Department of Natural Resources and Environmental Control (DNREC) proposes to issue a NPDES permit to discharge storm water run-off subject to certain effluent limitations and special conditions identified in the Part I, and Part III of the permit. Section 402 of the Federal Clean Water Act of 1977, as amended and 7 Del. C., Chapter 60 provides the authority for NPDES permit issuance. Regulations promulgated pursuant to these statutes are the regulatory basis for permit issuance.

FACT SHEET
National Railroad Passenger Corporation

ORIGINAL

Page 2

Receiving Stream Classification

In the current reissuance permit the applicant has five outfalls, out of which four go to a tributary to Brandywine Creek. The designated uses of the Creek in the area of the discharge are: Industrial Water Supply; Primary and Secondary Contact Recreation; and Protection of Fish, Aquatic Life, and Wildlife.

Outfall 002A goes to Shellpot Creek. The designated uses of the Creek in the area of the discharge are: Industrial Water Supply; Primary and Secondary Contact Recreation; and Protection of Fish, Aquatic Life, and Wildlife.

Description of Discharge

1. Existing Discharges

The monitoring point for outfall 001 is in Brandywine tributary at Dam B, where samples are taken as the water in the tributary makes its way to downstream. The constituents of this outfall can be found in Part I, Section A. of the permit, attached.

The storm water run-off from the north side of the Amtrak property discharges through outfall 002A to the Shellpot Creek. The constituents of this outfall can be found in Part I, Section A. of the permit, attached.

2. New Monitoring Location

The Amtrak maintenance facility is spread over 85 acres of land. Storm water run-off from the one third of the site discharges through outfall 002A to Shellpot Creek. In addition, the outfall 001 represents the downstream water quality after the dilution, which is not the true representation of storm water run-off from their industrial site. It is very important that Amtrak monitor the storm water run-off before it enters into the stream. For true representation of storm water run-off water quality, four new monitoring locations (003, 004, 005, and 006) are required in the permit.

Outfall 003 will be a newly created storm water sampling location along the Brandywine tributary. Outfall 003 should be located near the 250,000 gallon oil tank and Dam B, and should represent the most likely contaminated run-off of the site. The constituents of this outfall can be found on pages 9 and 15 of the permit.

FACT SHEET
National Railroad Passenger Corporation

ORIGINAL

Page 3

Outfall 004 is the discharge from the catch basin located between the north and south lake of Wye (Y) (please see Page 6 of the permit). This catch basin has a lower ground level as compared to its surroundings. Storm water run-off stays there and eventually flows to the drainage ditch. The constituents of this outfall can be found on pages 10 and 15 of the permit, attached.

Outfall 005 is the downstream flow of the drainage ditch which represents the extreme south side of the maintenance yard. The constituents of this outfall can be found on pages 11 and 16 of the permit, attached.

Outfall 006 is the storm water discharge through a 38 inch by 60 inch elliptical pipe from the southern half of the maintenance facility. The constituents of this outfall can be found on pages 12 and 17 of the permit, attached.

Proposed Effluent Limitations

DNREC has examined the application and proposes to issue the applicant a five year permit. Effluent limitations and monitoring requirements of the permit are attached on pages 7 through 17 of the permit. Following are the basis for the proposed limitations.

Basis for Effluent Limitations

1. Outfall 001 & 002A

The current limits and monitoring requirements and effluent limitations have been retained from the previous permit. The monitoring requirements for Polychlorinated Biphenyls (PCB's), Trichloroethylene (TCE), Total Petroleum Hydrocarbon (TPH), Dieldrin, and Surfactants are based on State of Delaware Surface Water Quality Standards. Limits for oil & grease and pH are technology based. Monitoring for Total Petroleum Hydrocarbons (TPH) is added to measure petroleum in the storm water run-off.

2. Outfall 003, 004, 005, & 006

The current monitoring requirements and effluent limitations for outfalls 003, 004, 005, and 006 are based upon Sections 3.01 and 3.02 of the Regulations Governing the Control Water Pollution.

Special Conditions

Per Special Condition No. 1, this permit supersedes NPDES Permit DE 0050962 and State Permit WPC 3089/85 issued on September 17, 1985.

Special Condition No. 2 is a permit reopener clause.

Special Condition No. 3 requires submitting and implementing a Storm Water Pollution Prevention Plan (SWP).

FACT SHEET
National Railroad Passenger Corporation

ORIGINAL
(Red)

Page 4

Special Condition No. 4 describes the methodology of oil & grease and purgeable organic (Trichloroethylene) sampling for outfalls 001 and 005.

Special Condition No. 5 specifies wet weather sampling requirements for outfalls 001, 002A, and 005.

Special Condition No. 6 is based on 7 Del. C., Chapter 60, Section 6028, and it specifies the discharges only through permitted outfalls.

Contact Person:

Name: Shanshahi Merchant
Telephone No.: (302) 739-5731

ORIGINAL
(Red)

State Permit Number WPC 3089A/85
NPDES Permit Number DE 0050962
Effective Date: November 4, 1992
Expiration Date: November 3, 1997

AUTHORIZATION TO DISCHARGE UNDER THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

AND THE LAWS OF THE

STATE OF DELAWARE

In compliance with the provisions of the Federal Water Pollution Control Act, as amended by the Clean Water Act of 1977 (33 U.S.C. 1251 et seq.) (hereinafter referred to as "the Act"), and pursuant to the provisions of 7 Del. C., §6003

The National Railroad Passenger Corporation (Amtrak)
Wilmington Maintenance Facility
4001 Vandever Avenue
Wilmington, DE 19802

is authorized to discharge from the facility
(Point Sources 001, 002A, 003, 004, 005, and 006) located at

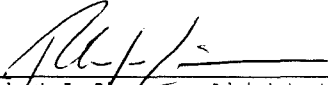
4001 Vandever Avenue
Wilmington, Delaware 19801

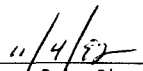
- 001 - Adjacent to Dam B in a tributary of Brandywine Creek
- 002A - Outfall of 42 inches storm sewer in Shellpot Creek
- 003 - (New) Collecting channel closer to 250,000 gal. oil tank before the storm water reaches the tributary of Brandywine
- 004 - (New) At catch basin between the south and the north lake of Wye
- 005 - (New) Adjacent to Dam C in a drainage ditch
- 006 - (New) 38 inch by 60 inch storm water outfall from the southern half of the Maintenance Facility

to receiving waters named

Brandywine Tributary (001, 003, 004, 005, and 006) and Shellpot Creek (002A)

The effluent limitations, monitoring requirements, and other permit conditions are set forth in Part I, II, and III hereof.

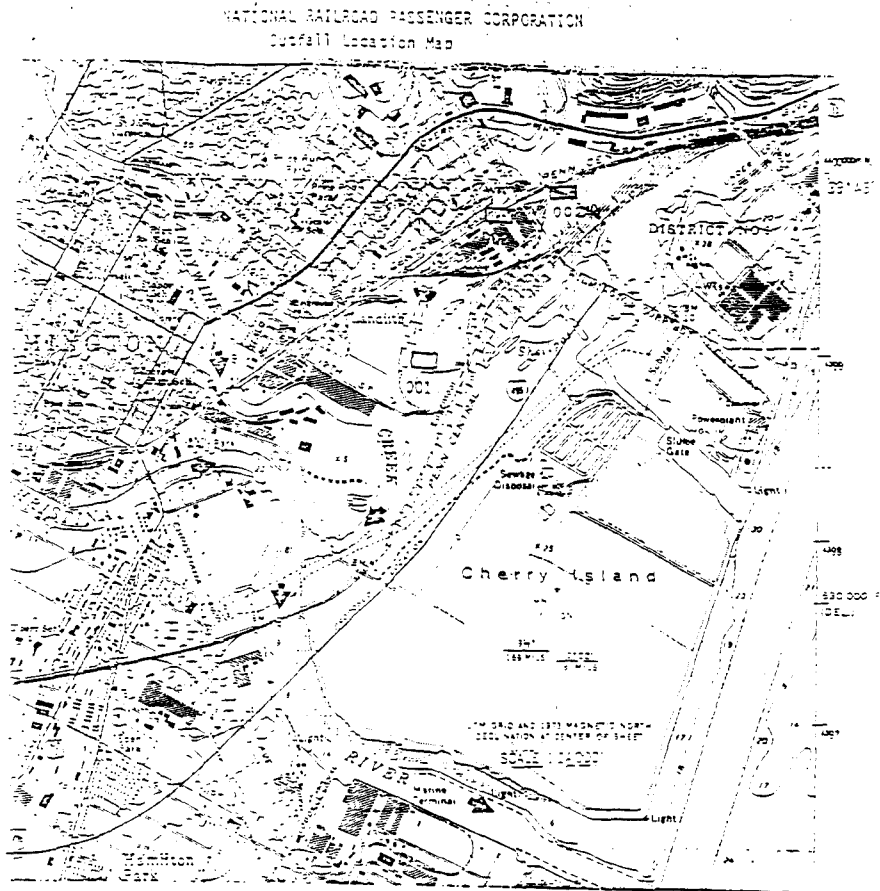

Robert J. Zimmerman, Administrator
Surfacewater Management Section
Division of Water Resources
Department of Natural Resources
and Environmental Control


Date Signed

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A. General Description of Discharges and Facilities

A.2. Location map:



Adjacent to Dam 3 in Branchville Creek Tributary

Location Map
 From U.S. Geological Survey Map, 1967
 National Railroad Passenger Corporation
 Wilmington, Delaware

1. (Scale of 40" from river in
 Branchville Creek)

1/4 mile

A. General Description of Discharges and Facilities

A.1. Outfall 001 - Adjacent to dam B in Brandywine tributary. Storm water run-off from maintenance yard, and the lift station area.

Outfall 002A - Discharge of 42 inch diameter storm sewer at Shellpot Creek. Storm water run-off from the shop roofs drain, catch basins, parking lots, and paved roadways run-off.

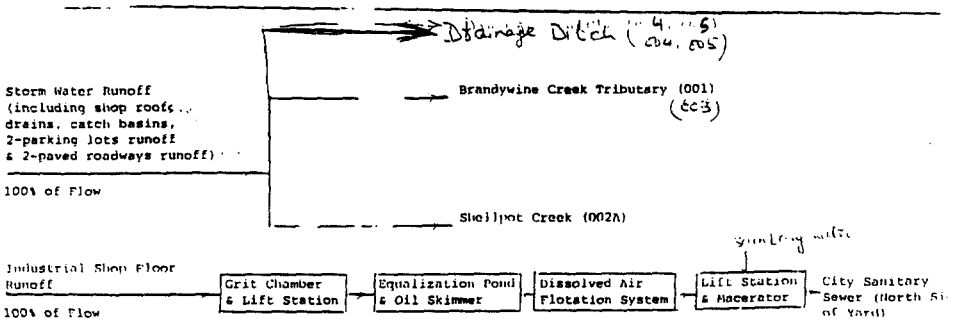
Outfall 003 - It will be a newly created sampling location located near the 0.25 million gallon oil tank.

Outfall 004 - A catch basin between the south and the north lake of Wye (Please see the note on Page 6 of the permit). Storm water run-off from the west side of maintenance yard.

Outfall 005 - Adjacent to Dam C in the drainage ditch. Storm water run-off from the south side of the maintenance yard.

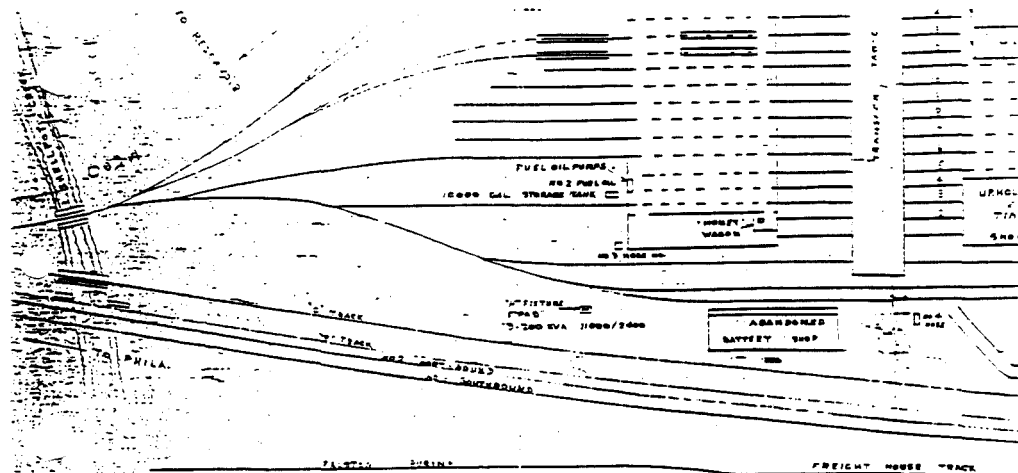
Outfall 006 - 38 inch by 60 inch elliptical pipe for storm water run-off from the southern half of the Maintenance Facility.

Schematic flow diagram:

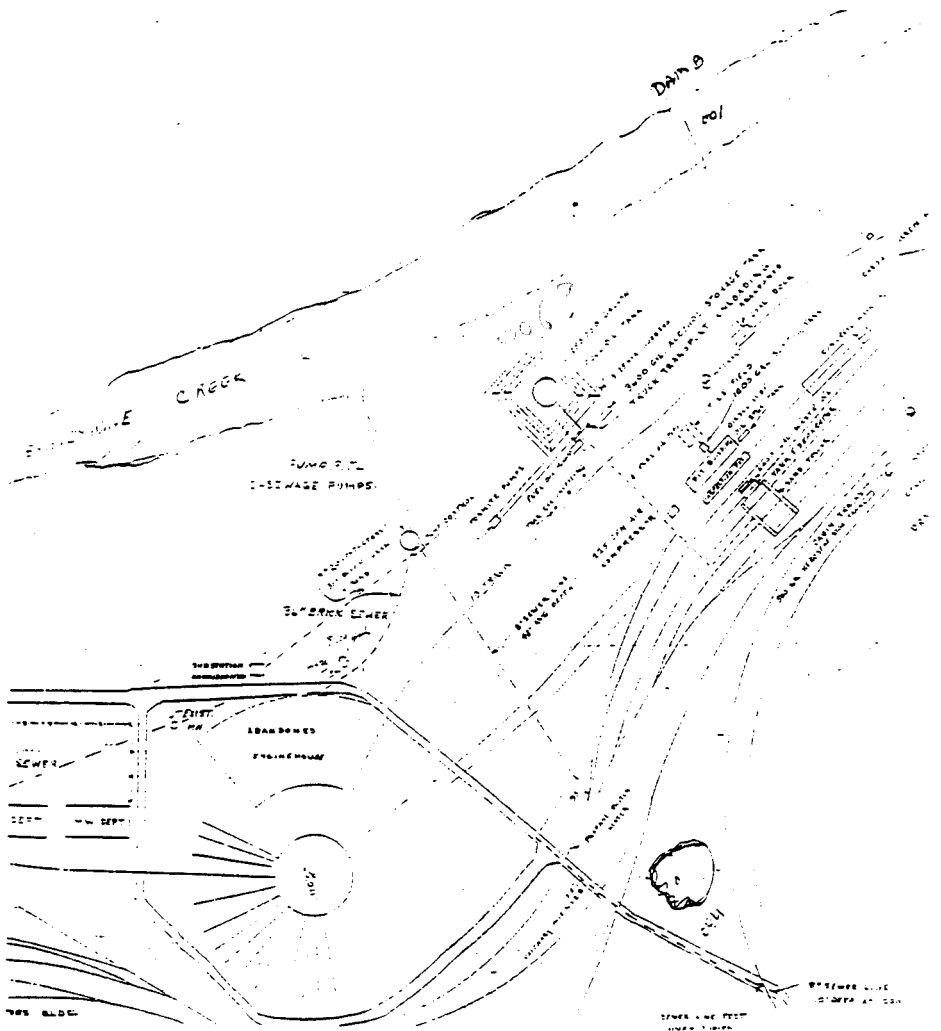


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A.3. Outfall 002A:



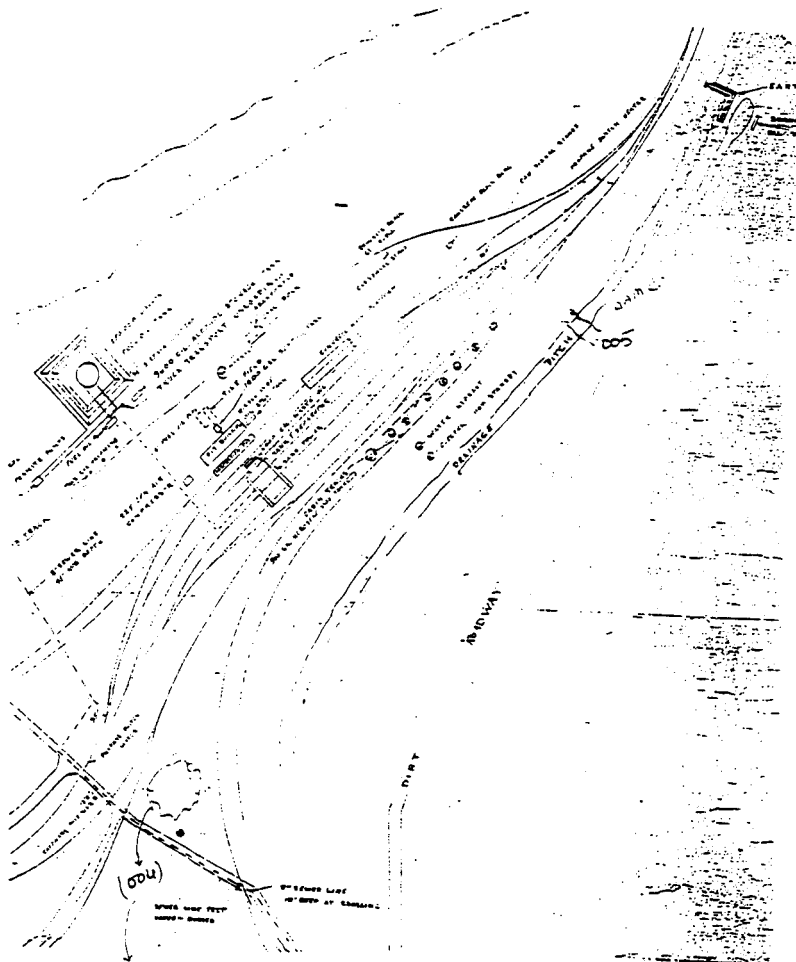
A.4. Outfalls 001 and 004:



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A. General Description of Discharges and Facilities

A.5. Outfalls 004 and 005:



NOTE: Facility refers this location as
 "North and South Lake of WYE."
 This location is very close to
 the front gate.

B.1. EFFLUENT LIMITATIONS

During the period beginning effective date and lasting through expiration date, the permittee is authorized to discharge from point source(s) 001 (1) the quantity and quality of effluent specified below:

The average quantity of effluent discharged from the wastewater treatment facility shall not exceed N/A million gallons per day (mgd) or N/A cubic meters per day.

Parameter	<u>Daily Average</u>		<u>Daily Maximum</u>		<u>Maximum Instantaneous</u>
	lbs/day	kg/day	Concentration	lbs/day	kg/day
Oil & Grease			10 mg/L		
					15 mg/L

There shall be no discharge of polychlorinated biphenyls (PCB's) from the Amtrak facility.

The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units. The discharge shall be free from floating solids, sludge deposits, debris, oil and scum.

- (1) 001 - Sampling should be done adjacent to Dam B in the Brandywine Tributary. This include storm water run-off from the maintenance yard and lift station area.

B.2. EFFLUENT LIMITATIONS

During the period beginning effective date and lasting through expiration date, the permittee is authorized to discharge from point source(s) 002A (1) the quantity and quality of effluent specified below:

The average quantity of effluent discharged from the wastewater treatment facility shall not exceed N/A million gallons per day (mgd) or N/A cubic meters per day.

Parameter	<u>Daily Average</u>			<u>Daily Maximum</u>		<u>Maximum Instantaneous</u>
	lbs/day	kg/day	Concentration	lbs/day	kg/day	Concentration
Oil & Grease			10 mg/L			15 mg/L

There shall be no discharge of polychlorinated biphenyls (PCB's) from the Amtrak facility.

The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units. The discharge shall be free from floating solids, sludge deposits, debris, oil and scum.

- (1) 002A - 42 inch storm water sewer discharge to the Shellpot Creek. It includes storm water run-off from the shop roofs drain, catch basins, parking lots, and paved roadways run-off. It shall not contain any sanitary or waste water from the plant. Dry weather discharge is prohibited.

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B.3. EFFLUENT LIMITATIONS

During the period beginning at the end of compliance schedule and lasting through expiration date the permittee is authorized to discharge from point source(s) 003 (1) the quantity and quality of effluent specified below:

The average quantity of effluent discharged from the wastewater treatment facility shall not exceed N/A million gallons per day (mgd) or N/A cubic meters per day.

Parameter	<u>Daily Average</u>		<u>Daily Maximum</u>		<u>Maximum Instantaneous</u>
	lbs/day	kg/day	Concentration	lbs/day	kg/day

There shall be no discharge of polychlorinated biphenyls (PCB's) from the Amtrak facility.

The discharge shall be free from floating solids, sludge deposits, debris, oil and scum.

- (1) 003 - It is a newly created sampling location, near the 250,000 gallon Oil tank. Sampling should be done before the storm water run-off enters the stream. Also see the compliance schedule in Part I, Section D of this permit.

B.4. EFFLUENT LIMITATIONS

During the period beginning effective date and lasting through expiration date, the permittee is authorized to discharge from point source(s) 004 (1) the quantity and quality of effluent specified below:

The average quantity of effluent discharged from the wastewater treatment facility shall not exceed N/A million gallons per day (mgd) or N/A cubic meters per day.

Parameter	<u>Daily Average</u>		Concentration	<u>Daily Maximum</u>		<u>Maximum Instantaneous Concentration</u>
	lbs/day	kg/day		lbs/day	kg/day	

There shall be no discharge of polychlorinated biphenyls (PCB's) from the Amtrak facility.

The discharge shall be free from floating solids, sludge deposits, debris, oil and scum.

- (1) 004 - It is a newly created outfall in a catch basin area between the south and north lake of WYE (Please see the note on Page 6 of the permit). Sampling should be done before the contaminated run-off enters in the drain ditch. Also see the compliance schedule in Part I, Section D of the permit.

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B.5. EFFLUENT LIMITATIONS

During the period beginning effective date and lasting through expiration date the permittee is authorized to discharge from point source(s) 005 (1) the quantity and quality of effluent specified below:

The average quantity of effluent discharged from the wastewater treatment facility shall not exceed N/A million gallons per day (mgd) or N/A cubic meters per day.

	<u>Daily Average</u>			<u>Daily Maximum</u>		<u>Maximum Instantaneous</u>
						<u>Concentration</u>
Parameter	lbs/day	kg/day	Concentration	lbs/day	kg/day	

There shall be no discharge of polychlorinated biphenyls (PCB's) from the Amtrak facility.

The discharge shall be free from floating solids, sludge deposits, debris, oil and scum.

- (1) 005 - Adjacent to Dam C in the drainage ditch. This includes storm water run-off from the south side of the maintenance yard.

B.6. EFFLUENT LIMITATIONS

During the period beginning effective date and lasting through expiration date the permittee is authorized to discharge from point source(s) 006 (1) the quantity and quality of effluent specified below:

The average quantity of effluent discharged from the wastewater treatment facility shall not exceed N/A million gallons per day (mgd) or N/A cubic meters per day.

	<u>Daily Average</u>			<u>Daily Maximum</u>		<u>Maximum Instantaneous Concentration</u>
Parameter	lbs/day	kg/day	Concentration	lbs/day	kg/day	

There shall be no discharge of polychlorinated biphenyls (PCB's) from the Amtrak facility.

The discharge shall be free from floating solids, sludge deposits, debris, oil and scum.

- (1) 006 - 38 inch by 60 inch elliptical pipe for storm water run-off from the southern half of the Maintenance Facility.

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C.1. MONITORING REQUIREMENTS

During the period beginning effective date and lasting through expiration date, the permittee is authorized to discharge from outfall(s) 001 (1).

Such discharge shall be monitored by the permittee as specified below:

<u>Effluent Parameter</u>	<u>Monitoring Requirement</u>	
	<u>Measurement</u>	<u>Sample</u>
	<u>Frequency</u>	<u>Type</u>
Oil & Grease (2)	Quarterly	Grab
Polychlorinated Biphenyls (PCB's)	Quarterly	Composite
Surfactants	Quarterly	Composite
Trichloroethylene (2)	Quarterly	Grab
pH	Quarterly	Grab
Total Petroleum Hydrocarbon (TPH)	Quarterly	Grab

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location: Outfall 001 at Dam B on a tributary of Brandywine Creek.

- (1) 001- Adjacent to dam B in Brandywine tributary. Storm water run-off from maintenance yard, and from the lift station area. Also see Special Condition 5 in Part III of the permit.
- (2) See Special Condition 4 in Part III of the permit.

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C.2. MONITORING REQUIREMENTS

During the period beginning effective date and lasting through expiration date, the permittee is authorized to discharge from outfall(s) 002A (1).

Such discharge shall be monitored by the permittee as specified below:

<u>Effluent_Parameter</u>	<u>Monitoring_Requirement</u>	
	Measurement _Frequency_	Sample _Type_
Oil & Grease	Quarterly	Grab
Polychlorinated Biphenyls (PCB's)	Quarterly	Composite
Surfactants	Quarterly	Composite
Dieldrin	Quarterly	Composite
Trichloroethylene	Quarterly	Grab
Total Petroleum Hydrocarbon (TPH)	Quarterly	Grab
pH	Quarterly	Grab

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location: at the end of the 42 inch diameter discharge pipe to Shellpot Creek.

- (1) Discharge to Shellpot Creek. Storm water run-off from the shop roofs drain, catch basins, parking lots, and paved roadways run-off. The occurrence of rainfall shall be based on the instruments and records of the Weather Station at the Greater Wilmington Airport. Also see Special Condition 5 in Part III of the permit.

C.3. MONITORING REQUIREMENTS

During the period beginning end of compliance schedule and lasting through expiration date, the permittee is authorized to discharge from outfalls 003 and 004 (1) as specified below:

<u>Effluent Parameter</u>	<u>Monitoring Requirement</u>	
	<u>Measurement Frequency</u>	<u>Sample Type</u>
Oil & Grease	Quarterly	Grab
Polychlorinated Biphenyls (PCB's)	Quarterly	Grab
Surfactants	Quarterly	Grab
Trichloroethylene	Quarterly	Grab
Dieldrin	Quarterly	Grab
Total Petroleum Hydrocarbon (TPH)	Quarterly	Grab
pH	Quarterly	Grab

All samples shall be collected from the discharge resulting from the storm event that is greater than 0.1 inches and at least 72 consecutive hours from the previously measurable (greater than 0.1 inch rainfall) storm event. All samples shall be taken within 30 minutes after discharge starts. Samples taken in compliance with the monitoring requirements specified above shall be taken at the outfalls of discharges listed above.

- (1) Storm water run-off from containment area of the plant, and possibly contains ground water infiltration. The occurrence of rainfall shall be based on the instruments and records of the Weather Station at the Greater Wilmington Airport.

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C.4. MONITORING REQUIREMENTS

During the period beginning effective date and lasting through expiration date, the permittee is authorized to discharge from outfall(s) 005 (1).

Such discharge shall be monitored by the permittee as specified below:

<u>Effluent Parameter</u>	<u>Monitoring Requirement</u>	
	<u>Measurement Frequency</u>	<u>Sample Type</u>
Oil & Grease (2)	Quarterly	Grab
Polychlorinated Biphenyls (PCB's)	Quarterly	Composite
Surfactants	Quarterly	Composite
Dieldrin	Quarterly	Composite
Trichloroethylene (2)	Quarterly	Grab
Total Petroleum Hydrocarbon (TPH)	Quarterly	Grab
pH	Quarterly	Grab

Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location: Outfall 005 adjacent to Dam C in the drainage ditch.

- (1) Adjacent to Dam C in the drainage ditch. Storm water run-off from the south side of the maintenance yard. Also see Special Condition 5. in Part III of the permit.
- (2) See Special Condition 4. in Part III of the permit.

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C.5. MONITORING REQUIREMENTS

During the period beginning end of compliance schedule and lasting through expiration date, the permittee is authorized to discharge from outfall 006 (1) as specified below:

<u>Effluent Parameter</u>	<u>Monitoring Requirement</u>
<u>Measurement</u> <u>Frequency</u>	<u>Sample</u> <u>Type</u>
Oil & Grease	Quarterly Grab
Polychlorinated Biphenyls (PCB's)	Quarterly Grab
Surfactants	Quarterly Grab
Trichloroethylene	Quarterly Grab
Dieldrin	Quarterly Grab
Total Petroleum Hydrocarbon (TPH)	Quarterly Grab
pH	Quarterly Grab

All samples shall be collected from the discharge resulting from the storm event that is greater than 0.1 inches and at least 72 consecutive hours from the previously measurable (greater than 0.1 inch rainfall) storm event. All samples shall be taken within 30 minutes after discharge starts. Samples taken in compliance with the monitoring requirements specified above shall be taken at the discharge from the 38 inches by 60 inches pipe to the Brandywine Tributary.

- (1) 38 inch by 60 inch elliptical pipe for storm water run-off from the southern half of the Maintenance Facility. The occurrence of rainfall shall be based on the instruments and records of the Weather Station at the Greater Wilmington Airport.

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D. SCHEDULE OF COMPLIANCE

1. The permittee shall achieve compliance with the effluent limitations specified for discharges in accordance with the following schedule:

Construct storm water sampling locations for outfalls 003 and 004 within 90 days after the permit issuance.

2. No later than 14 calendar days following a date identified in the above schedule of compliance, the permittee shall submit either a report of progress or, in the case of specific actions being required by identified dates, a written notice of compliance or non-compliance. In the latter case, the notice shall include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirement.

E. Monitoring and Reporting

1. Representative Sampling

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge.

2. Reporting

Monitoring results obtained during the previous one (1) month shall be summarized for each month and reported on a Discharge Monitoring Report Form (EPA No. 3320-1), postmarked no later than the 28th day of the month following the completed reporting period. Signed copies of these, and all other reports required herein, shall be submitted to the State at the following address:

DELAWARE DEPT. OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL,
DIVISION OF WATER RESOURCES, R & R BUILDING, P. O. BOX 1401,
DOVER, DELAWARE 19903 TELEPHONE: (302) 739-5731

3. Definitions

- a. The daily average discharge - The total discharge by weight during a calendar month divided by the number of days in the month that the production or commercial facility was operating. Where less than daily sampling is required by this permit, the daily average discharge shall be determined by the summation of all the measured daily discharges by weight divided by the number of days during the calendar month when the measurements were made.
- b. The daily maximum discharge - The total discharge by weight during any calendar day.
- c. Maximum instantaneous concentration - The concentration of a pollutant in terms of milligrams per liter which represents the value obtained from a grab sample of an effluent. The maximum instantaneous concentration shall be based on a review of the degree of fluctuation experienced in comparable systems. For purposes of compliance, the maximum instantaneous concentration shall be based on the actual analysis of the grab sample.
- d. Bypass - The intentional diversion of wastes from any portion of a treatment facility.
- e. Upset - An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facility, inadequate treatment facilities, lack of preventive maintenance or careless or improper operation.
- f. Composite sample - A combination of individual samples obtained at intervals over a time period. Either the volume of each individual sample is proportional to discharge flow rates or the sampling interval (for constant volume samples) is proportional to the flow rates over the time period used to produce the composite. For a continuous discharge, a minimum of 24 individual grab samples shall be collected and combined to constitute a 24 hour composite sample. For intermittent discharges of 4-8 hours duration, a minimum of 12 grab samples shall be collected and combined to constitute the composite sample for the discharge. For intermittent discharges of less than 4 hours, a minimum of individual grab samples shall be collected and combined to constitute the composite sample equal to the duration of the discharge in hours times 3 but not less than 3 samples.
- g. Grab sample - An individual sample collected in less than 15 minutes.

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- h. I/S (immersion stabilization) - A calibrated device is immersed in the effluent stream until the reading is stabilized.
- i. The monthly average temperature - The arithmetic mean of temperature measurements made on an hourly basis, or the mean value plot of the record of a continuous automated temperature recording instrument, either during a calendar month, or during the operating month if flows are of shorter duration.
- j. The daily maximum temperature - The highest arithmetic mean of the temperature observed for any two (2) consecutive hours during a 24-hour day, or during the operating day if flows are of shorter duration.
- k. Measured flow - Any method of liquid volume measurement the accuracy of which has been previously demonstrated in engineering practice, or for which a relationship to absolute volume has been obtained.
- l. Estimate - To be based on a technical evaluation of the sources contributing to the discharge including, but not limited to, pump capabilities, water meters and batch discharge volumes.
- m. Non-contact cooling water - The water that is contained in a leak-free system, i.e., no contact with any gas, liquid, or solid other than the container for transport; the water shall have no net poundage addition of any pollutant over intake water levels.

4. Test Procedures

Test procedures for the analysis of pollutants shall conform to the applicable test procedures identified in 40 C.F.R., Part 136, unless otherwise specified in this permit.

5. Quality Assurance Practices

The permittee is required to show the validity of all data by requiring its laboratory to adhere to the following minimum quality assurance practices:

- a. Duplicate⁽¹⁾ and spiked⁽²⁾ samples must be run for each constituent in the permit on 5% of the samples, or at least on one sample per month, whichever is greater. If the analysis frequency is less than one sample per month, duplicate and/or spiked samples must be run for each analysis.
- b. For spiked samples, a known amount of each constituent is to be added to the discharge sample. The amount of constituent added should be approximately the same amount present in the unspiked sample, or must be approximately that stated as maximum or average in the discharge permit.

-
- 1) Duplicate samples are not required for the following parameters: color, temperature, and turbidity.
 - 2) Spike samples are not required for the following parameters: Acidity, alkalinity, Bacteriological, Benzidine, Chlorine, Color, Dissolved Oxygen, Hardness, pH, Oil & Grease, Radiological, Residues, Temperature, Turbidity, BOD₅, and Total Suspended Solids. Procedures for spiking samples are available through the Regional Quality Assurance Coordinator.

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- c. The data obtained in a and b shall be summarized in an annual report submitted at the end of the fourth quarter of reporting in terms of precision, percent recovery, and the number of duplicate and spiked samples run, date and laboratory log no. of samples run and name of analyst.
- d. Precision shall be calculated by the formula, standard deviation $s = (d/k)^{1/2}$, where d is the difference between duplicate results, and k is the number of duplicate pairs used in the calculations.
- e. Percent recovery shall be reported on the basis of the formula $R = 100 (F-I)/A$, where F is the analytical result of the spiked sample, I is the result before spiking of the sample, and A is the amount of constituent added to the sample.
- f. The percent recovery, R, in e above shall be summarized yearly in terms of mean recovery and standard deviation from the mean. The formula, $s = ((x-\bar{x})^2 / (n-1))^{1/2}$, where s is the standard deviation around the mean x, x is an individual recovery value, and n is the number of data points, shall be applied.
- g. The permittee or his contract laboratory is required to annually analyze an external quality control reference sample for each pollutant. These are available through the EPA regional quality assurance coordinator. Results shall be included in the annual report, c above.
- h. The permittee and/or his contract laboratory is required to maintain an up-to-date and continuous record of the method used, of any deviations from the method or options employed in the reference method, of reagent standardization, of equipment calibration and of the data obtained in a, b and f above.
- i. If a contract laboratory is utilized, the permittee shall report the name and address of the laboratory and the parameters analyzed together with the monitoring data required.

6. Records

- a. For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information:
- (1) The date, exact place and time of sampling or measurements;
 - (2) The person(s) who performed the sampling or measurements;
 - (3) The dates analyses were performed;

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- (4) The person(s) who performed each analysis;
- (5) The analytical techniques or methods used;
- (6) The results of each analyses; and
- (7) The quality assurance information as stated above.

b. An operator log must be kept on site at all times. This log should include time spent at the treatment facility on any date, and the nature of operation and maintenance performed.

7. Additional Monitoring by Permittee

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified above, the results of such monitoring shall be included in the calculation and reporting of the values required in the Discharge Monitoring Report Form (EPA No. 3320-1). Such increased frequency shall also be indicated.

8. Records Retention

All records and information resulting from the monitoring activities required by this permit including all records of analyses performed and calibration and maintenance of instrumentation and recording from continuous monitoring instrumentation shall be retained for three (3) years. This period of retention shall be extended automatically during the course of any unresolved litigation regarding the regulated activity or regarding control standards applicable to the permittee, or as requested by the Department.

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A. MANAGEMENT REQUIREMENTS

1. Change in Discharge

All discharges authorized herein shall be consistent with the terms and conditions of this permit. The discharge of any pollutant identified in this permit at a level in excess of that authorized shall constitute a violation of the permit. Any anticipated facility expansions, production increase, or process modifications which will result in new, different or increased discharge of pollutants must be reported by submission of a new NPDES application at least 180 days prior to commencement of the changed discharge. Any other activity which would constitute cause for modification or revocation and reissuance of this permit, as described in Part II, B-5 of this permit, shall be reported to the Department. Following such notice, the permit may be modified to specify and limit any pollutants not previously limited.

2. Noncompliance Notification

- a. If, for any reason, the permittee does not comply with or will be unable to comply with any daily maximum effluent limitations or maximum instantaneous concentration specified in this permit, the permittee shall provide the Department with the following information, in writing, within five (5) days of becoming aware of such conditions:
 - (1) A description of the discharge and cause of noncompliance;
 - (2) The period of noncompliance, including exact dates and times and the anticipated time when the discharge will return to compliance;
 - (3) Steps being taken to reduce, eliminate and prevent recurrence of the noncomplying discharge.
- b. In the case of any upset or discharge subject to any toxic pollutant effluent standard under Section 307(a) of the Act, the Department shall be notified within 24 hours of the time the permittee becomes aware of the noncomplying discharge. Notification shall include information as described in paragraph 2(a) above. If such notification is made orally, a written submission must follow within five (5) days of the time the permittee becomes aware of the noncomplying discharge.

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3. Facilities Operation

The permittee shall at all times maintain in good working order and operate as efficiently as possible all collection and treatment facilities and systems (and related appurtenances) installed or used by the permittee to achieve compliance with the terms and conditions of this permit. Proper operation and maintenance includes, but is not limited to, effective performance based on designed facility removals, adequate funding, effective management, adequate operator staffing and training and adequate laboratory and process controls including appropriate quality assurance procedures.

4. Adverse Impact

The permittee shall take all reasonable steps to minimize any adverse impact to the waters of the State or the United States resulting from noncompliance with this permit, including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

5. Bypassing

Any bypass of treatment facilities necessary to maintain compliance with the terms and conditions of this permit is prohibited unless:

- a. The bypass is unavoidable to prevent loss of life, personal injury or severe property damage; and
- b. There are no alternatives; and
- c. The Department is notified within 24 hours (if orally notified, then followed by a written submission, within five (5) days of the permittee's becoming aware of the bypass. Where the need for a bypass is known (or should have been known) in advance, this notification shall be submitted to the Department for approval at least ten (10) days before the date of bypass; and
- d. The bypass is allowed under conditions determined by the Department to be necessary to minimize adverse effect as provided under 7 Pel. C., Chapter 60, §6011.

6. Conditions Necessary for Demonstration of an Upset

An upset shall constitute an affirmative defense to an action brought for noncompliance with technology-based effluent limitations only if the permittee demonstrates, through properly signed contemporaneous operating logs, or other relevant evidence, that:

- a. An upset occurred and that the permittee can identify the specific cause(s) of the upset; and

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- b. The permitted facility was at the time being operated in a prudent and workman-like manner and in compliance with proper operation and maintenance procedures; and
- c. The permittee submitted a notification of noncompliance as required by Part II, A.2.b.
- d. The permittee has taken all remedial measures required to minimize adverse impact.

7. Removed Substances

Solids, sludges, filter backwash, or other pollutants removed in the course of collection or treatment of wastewaters shall be disposed of in a manner such as to prevent any pollutant from such materials from entering surface waters or groundwaters.

8. Failure

The permittee, in order to maintain compliance with its permit, shall control production and all discharges upon reduction, loss or failure of the treatment facility until the facility is restored or an alternative method of treatment is provided.

9. Alternative Power Source

In order to insure compliance with the effluent limitations and all other terms and conditions of this permit, the Department may require that the permittee shall provide an alternative power sufficient to operate the wastewater collection and treatment facilities in accordance with the Schedule of Compliance contained in Part I of this permit.

B. RESPONSIBILITY

1. Right of Entry

The permittee shall allow the Secretary of the Department of Natural Resources and Environmental Control, the Regional Administrator, and their authorized representatives, jointly and severally, upon the presentation of credentials and such other documents as may be required by law:

- a. To enter upon the permittee's premises where a point source is located or where any records are required to be kept under the terms and conditions of this permit; and
- b. At reasonable times to have access to and copy any records required to be kept under the terms and conditions of this permit; to inspect any monitoring equipment or monitoring method required in this permit; to inspect any collection, treatment, pollution management, or discharge facilities required under this permit; and to sample any discharge of pollutants.

2. Transfer of Ownership and Control

In the event of any change in ownership or control of facilities from which the authorized discharge emanates, the permit may be transferred to another person if the permittee:

- a. Notifies the Department, in writing, of the proposed transfer; and
- b. A written agreement between the transferer and the transferee, indicating the specific date of proposed transfer of permit coverage and acknowledging responsibilities of current and new permittees for compliance with and liability for the terms and conditions of this permit, is submitted to the Department; and
- c. The Department within thirty (30) days of receipt of the notification of the proposed transfer does not notify the current permittee and the new permittee of intent to modify, revoke and reissue, or terminate the permit and require that a new application be submitted.

3. Reapplication for a Permit

At least 180 days before the expiration date of this permit, the permittee shall submit a new application for a permit or notify the Department of the intent to cease discharging by the expiration date. In the event that a timely and sufficient reapplication has been submitted and the Department is unable, through no fault of the permittee, to issue a new permit before the expiration date of this permit, the terms and conditions of this permit are automatically continued and remain fully effective and enforceable.

4. Availability of Reports

Except for data determined to be confidential under Section 308 of the Act, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Department of Natural Resources and Environmental Control. As required by the Act, effluent data shall not be considered confidential. Knowingly making any false statement on any such report may result in the imposition of criminal penalties as provided for under 7 Del. C., §6013.

5. Permit Modification, Revocation and Reissuance and Termination

- a. After notice and opportunity for a hearing, this permit may be modified, terminated, or revoked and reissued in whole or in part during its term for cause including, but not limited to, the following:

- (1) Violation of any terms or conditions of this permit;
- (2) Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts;
- (3) A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge; or
- (4) Information that the permitted discharge poses a threat to human health or welfare.
- b. In addition to the provisions of paragraph 5.a. above, this permit may be modified, revoked and reissued in whole or in part, but not terminated, after notice and opportunity for a hearing, for cause including, but not limited to, the following:
- (1) Material and substantial alterations or additions to the discharger's operation which were not covered in the effective permit provided that such alterations do not constitute total replacement of the process or production equipment causing the discharge which converts it into a new source;
- (2) The existence of a factor or factors which, if properly and timely brought to the attention of the Department, would have justified the application of limitations or other requirements different from those required by applicable standards or limitations but only if the requestor shows that such factor or factors arose after the final permit was issued;
- (3) Revision, withdrawal or modification of State water quality standards or Environmental Protection Agency promulgated effluent limitations guidelines, but only when:
- (a) The permit term or condition requested to be modified or revoked was based on a promulgated effluent limitations guideline or an Environmental Protection Agency approved State water quality standards.
- (b) The U.S. Environmental Protection Agency has:
- (i) Revised, withdrawn or modified that portion of the effluent limitations guidelines on which the permit term or condition was based; or
- (ii) Approved a State action with regard to a water quality standard on which the permit term or condition was based; and

Part II
State Permit Number WPCC 3089A/85
NPDES Permit Number DE 0050962
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- (c) A request for modification or revocation and reissuance is filed within ninety (90) days after Federal Register notice is:
- (i) Revision, withdrawal or modification of that portion of the effluent limitations guidelines; or
 - (ii) The U.S. Environmental Protection Agency approval of State action regarding a water quality standard;
- (4) Judicial remand of Environmental Protection Agency promulgated effluent limitations guidelines, if the remand concerns that portion of the guidelines on which the permit term or condition was based and the request is filed within ninety (90) days of the judicial remand;
- (5) Any modification or revocation and reissuance of permits specifically authorized by the Act;
- (6) To comply with any applicable standard or limitation promulgated or approved under sections 301(b) (2) (C) and (D), 304 (b) (2) and 307 (a) (2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:
- (a) Contains different conditions or is otherwise more stringent than any effluent limitations in the permit; or
 - (b) Controls any pollutant not limited in the permit.
- The permit as modified or reissued under this paragraph shall also contain any other requirements of the Act then applicable.
- (7) To contain a schedule of compliance leading to termination of the direct discharge by a date which is no later than the statutory deadline;
- (8) To modify a schedule of compliance in an issued permit for good and valid cause by a date which is no later than the statutory deadline.
- (9) To modify a schedule of compliance of a POTW which has received a grant, under section 202(a) (3) of the Act, to reflect the amount of time lost during construction of the innovative and alternative facilities by a date which is no later than the statutory deadline.

6. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under 7 Del. C., Chapter 60.

Part II

State Permit Number WPCC 3089A/85

NPDES Permit Number DE 0050962

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7. State Laws

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulation.

8. Discharge of Pollutants

Any person who causes or contributes to the discharge of a pollutant into waters of the State or the United States either in excess of any conditions specified in this permit or in absence of a specific permit condition shall report such an incident to the Department as required under 7 Del. C., §6028.

9. Property Rights

The issuance of this permit neither conveys any property rights in either real or personal property, or any exclusive privileges, nor authorizes any injury to private property or any invasion of personal rights, or any infringement of Federal, State or local laws or regulations.

10. Construction Authorizations

This permit does not authorize or approve the construction of any onshore or offshore physical structures or facilities or the undertaking of any work in any navigable waters.

11. Severability

The provisions of this permit are severable. If any provision of this permit is held invalid, the remainder of this permit shall not be affected. If the application of any provision of this permit to any circumstance is held invalid, its application to other circumstances shall not be affected.

A. Special Conditions

1. This permit supersedes NPDES Permit DE 0050962/State Permit WPCC 3089/85 issued to The National Railroad Passenger Corporation (Amtrak) Wilmington Facility on September 17, 1985.
2. If after the issuance of this permit, future analyses or biosurveys conducted by the Department or other agencies under its supervision, show that the permittee's discharge: (a) is causing, or has the potential to cause, diminished attainment of the receiving waters' designated protected uses, as defined by the State of Delaware Surface Water Quality Standards; or (b) is causing, or has the potential to cause, or contributes to, an instream excursion above any allowable numeric ambient criterion for the protection of aquatic life, as defined by the State of Delaware Surface Water Quality Standards; or (c) poses an unacceptable threat to human health, this permit may be reopened and, after notice and an opportunity for public hearing, modified during its term.

Modification may include, but are not limited to, the inclusion of the following: (a) new or more stringent discharge mass and concentration limits; (b) new or increased parameter monitoring; (c) biomonitoring or other special conditions. The permittee is responsible for reviewing its operations with respect to meeting the new or revised condition(s) and performing all actions necessary to ensure compliance with the new or revised conditions.

3. The permittee shall implement and maintain effective storm water management controls to minimize the discharge of contaminated storm water from its site. A Storm Water Plan (SWP) for pollution prevention shall be developed for this facility in accordance with engineering practices. The SWP shall identify potential sources of pollution which may reasonably be expected to affect the quality of storm water discharges associated with industrial activity from the facility. In addition, the SWP shall describe and ensure the implementation of practices which are to be used to reduce the pollutants in the storm water discharges associated with the facility.
- 3.1. Deadlines for the SWP Preparation and Compliance for Existing Facilities:
 - a. the SWP shall be prepared no later than one year after the effective date of this permit;
 - b. the SWP shall be implemented in accordance with this permit no later than two years after the effective date of this permit;
- 3.2. Contents of the SWP - The SWP shall include, at a minimum, the following items:

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- a. SWP Personnel - Each plan shall identify a specific individual or individuals within the company who will be responsible for implementation, inspection, maintenance and revision of the SWP.
- b. Facility Assessment
 - (1) A Facility Map - Provide a contoured site map indicating the potential sources of pollutants, drainage areas, structural controls, each storm water outfall and all surface waters that are within the facility boundaries.
 - (2) An Inventory of Significant Materials - Develop an inventory of the types of materials handled at the site. Such an inventory shall include a narrative description of significant materials that have been imported, stored or exported at the facility.
 - (3) An Inventory of Spills and Leaks - Provide a list of spills and leaks of significant materials that has occurred at areas that are exposed to precipitation or that otherwise drain to a storm water conveyance at the facility. The list shall be updated as appropriate during the term of the permit.
 - (4) Certification - Provide a certification that no illicit connections to the storm water system exist. If such connections exist, a plan and timetable for the removal of the connections must be developed.
 - (5) Sampling Data - Develop a list of any sampling data for storm water discharges that exists for the facility.
- c. Significant Material Control - All significant material that is imported, stored or exported from the site shall be managed in order to minimize the contribution of pollutants to storm water runoff. This includes the following:
 - (1) Management Practices for the handling, transferring and shipping of significant material in order to minimize the potential for leaks or spills which could contribute pollutants to storm water runoff;
 - (2) Structural Controls, when needed, to store, cover, enclose, contain, trap or treat significant materials or storm water containing significant materials;
 - (3) A Hazardous Substance and Oil Control Plan to prevent the contribution to the storm water system of hazardous materials and oil. Hazardous Materials are defined in 7 Del. C. Chapter 60, Section 6028 and the Reporting of a Discharge of a Pollutant or an Air Contaminant regulations:

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- [a] For areas where hazardous materials or oil are stored or unloaded, the SWP shall call for secondary containment to be maintained.
- [b] The Plan shall detail a sequence of steps to be followed in response to a spill or leak of hazardous material or oil. The Plan shall be designed to achieve the following:
 - i. Prevent any further release of hazardous material or oil;
 - ii. Contain the released hazardous material or oil;
 - iii. Determine the extent of contamination to soil and water;
 - iv. Remove all of the contaminant from the soil and water in which the contaminant is present;
 - v. Dispose properly of the contaminant; and
 - vi. Notify proper authorities in accordance with 7 Del.C. Chapter 60 Section 6028 - "Reporting A Discharge Of A Pollutant or An Air Contaminant":

The Department of Natural Resources and
Environmental Control
Environmental Emergency Notification and
Complaints
1 (800) 662-8802 or (302) 739-5072

- [c] The SWP shall also detail how waste fluids from vehicles or machinery shall be contained and disposed of properly in a way which prevents them from entering storm water runoff.
- d. For facilities subject to SARA III Section 313 Water Priority Chemicals - All areas where Water Priority Chemicals are handled, transferred or stored shall have secondary containment.
- e. Inspections - The areas where significant materials are stored shall be inspected once per month to determine the availability of significant materials to storm water runoff. Also, structural controls shall be inspected after every storm event that results in runoff.
- f. Maintenance - A preventive maintenance program shall involve timely maintenance of storm water management devices as well as any equipment existing at the facility that if failure of the equipment occurred, a discharge of pollutants to the storm water system would result.

- g. Recordkeeping and Internal Reporting Procedures - An ongoing log shall be kept of incidents such as spills, or other discharges, along with other information describing the quality and quantity of storm water discharges from the facility.
- h. Keeping Plans Current - The permittee shall amend the SWP whenever there is a change in design, construction or operation which has a significant effect on the potential for the discharge of pollutants to the waters of the United States or if the SWP proves to be ineffective in eliminating or effectively minimizing pollutants found in storm water discharges associated with the facility.
- i. Plan Review
 - (1) Upon notification from this Department that the SWP does not adequately address the requirements of this permit, the permittee shall amend the SWP and submit these amendments to this Department within 30 days of such notification. The notification from the Department shall list or describe the deficiencies of the SWP.
 - (2) This Department may grant additional time for amending a SWP. This extension must be obtained from the Department.
- j. Training - Facility employees and contractor personnel that work in areas where significant materials are used or stored shall be appropriately trained to meet the requirements of the SWP. Employee training shall be conducted not less than once per year.
- k. Consistency with other plans - The Storm Water Plan must comply with any other plans developed for the facility to control discharges of significant materials into the environment.
- l. Facility security - Facilities shall have the necessary security systems to prevent accidental or intentional entry which could result in a discharge of hazardous material or oil through vandalism.
- m. Engineering Certification - The SWP for facilities subject to SARA Title III, Section 313 requirements for chemicals which are classified as Water Priority Chemicals shall be reviewed by a Professional Engineer registered in the State of Delaware. The SWP shall be certified every three years thereafter or as soon as practicable after significant modifications are made to the facility. By means of these certifications the engineer, having examined the facility and being familiar with the provisions of this part, shall attest that the Storm Water Plan has been prepared in accordance with good engineering practices. Such

certifications shall in no way relieve the owner or operator of a facility covered by the plan of their duty to prepare and fully implement such plan.

4. On the sampling day, three grab samples shall be taken at evenly spaced time intervals; at least a three (3) hour time interval is required between each sample. Each grab sample shall be tested separately and the arithmetic mean of the three grab samples shall be calculated.

This special condition is applicable to Oil & Grease monitoring and to Purgeable Organic (Trichloroethylene) monitoring. Pursuant to 40 CFR, Part 136, the EPA test method 601 shall be used for Trichloroethylene analysis.

5. Two of the total of at least four quarters of test data shall be representative of wet weather conditions. The Department will review a total of at least twelve sets of test data. Based upon this review, decisions will be made relative to additional monitoring, additional effluent limitations, amendment of the existing permit limitations, and the need for any abatement action. The Department will notify the permittee in writing of any decisions made. The Department may modify this permit at any time, after public notice and opportunity for hearing, to amend or include effluent limitations based on the results of the required monitoring.
6. Discharge is permitted only from outfalls listed in Part I.A., "General Description of Discharges and Facilities" of this permit. The permittee must notify the Department of any unpermitted discharges to surface or ground water of the State of Delaware. Within (60) sixty days after the notification, the permittee must apply to the Department to include the discharge in the NPDES permit.

Preliminary Assessment Report
Amtrak Wilmington Refueling Facility
February, 1993

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APPENDIX D

AMTRAK 001

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DMR DATA	O&G	PCBs	SURFAC TANTS	TRI CHLORO ETHYLENE	DIELD- RIN	Y PETRO. HYDRO- CARBONS	pH	
	M	M	M	M	M	M	Min.	M
Permit Cond.	15	*	*	*	*	*	6.0	9.0
Sep. 1995								
Aug. 1995								
Jul. 1995								
Jun. 1995								
May 1995								
Apr. 1995								
Mar. 1995								
Feb. 1995								
Jan. 1995								
Dec. 1994								
Nov. 1994								
Oct. 1994								
Permit Cond.								
Sep. 1994								
Aug. 1994								
Jul. 1994								
Jun. 1994								
May 1994								
Apr. 1994								
Mar. 1994								
Feb. 1994								
Jan. 1994								
Dec. 1993								
Nov. 1993								
Oct. 1993								
Permit Cond.								
Sep. 1993								
Aug. 1993								
Jul. 1993								
Jun. 1993								
May 1993								
Apr. 1993								
Mar. 1993								
Feb. 1993								
Jan. 1993								
Dec. 1992								
Nov. 1992								
Oct. 1992								

DMR DATA

O&G M M M M M M
 PCBs M M M M M M
 SURFAC TANTS M M M M M M
 TRY CHLORO ETHYLENE M M M M M M
 DIELED- RIN M M M M M M
 PETRO. HYDRO- CARBONS M M M M M M
 pH Min. M

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Permit Cond.

15 * * * * * 6.0 9.0

Sep. 1995
 Aug. 1995
 Jul. 1995
 Jun. 1995
 May 1995
 Apr. 1995
 Mar. 1995
 Feb. 1995
 Jan. 1995
 Dec. 1994
 Nov. 1994
 Oct. 1994

Permit Cond.

Sep. 1994
 Aug. 1994
 Jul. 1994
 Jun. 1994
 May 1994
 Apr. 1994
 Mar. 1994
 Feb. 1994
 Jan. 1994
 Dec. 1993
 Nov. 1993
 Oct. 1993

Permit Cond.

Sep. 1993
 Aug. 1993
 Jul. 1993
 Jun. 1993
 May 1993
 Apr. 1993
 Mar. 1993
 Feb. 1993
 Jan. 1993
 Dec. 1992
 Nov. 1992
 Oct. 1992

Permit Cond.	15	*	*	*	*	*	Min.	M
Sep. 1995								
Aug. 1995								
Jul. 1995								
Jun. 1995								
May 1995								
Apr. 1995								
Mar. 1995								
Feb. 1995								
Jan. 1995								
Dec. 1994								
Nov. 1994								
Oct. 1994								
Permit Cond.								
Sep. 1994								
Aug. 1994								
Jul. 1994								
Jun. 1994								
May 1994								
Apr. 1994								
Mar. 1994								
Feb. 1994								
Jan. 1994								
Dec. 1993								
Nov. 1993								
Oct. 1993								
Permit Cond.								
Sep. 1993								
Aug. 1993								
Jul. 1993								
Jun. 1993								
May 1993								
Apr. 1993								
Mar. 1993								
Feb. 1993								
Jan. 1993								
Dec. 1992								
Nov. 1992								
Oct. 1992								

(Red)

Preliminary Assessment Report
Amtrak Wilmington Refueling Facility
February, 1993

APPENDIX E

ANALYSES OF WASTE WATER DISCHARGE SAMPLES, 1987

SAMPLE TYPE: Composite, waterNO. OF CONTAINERS: 1 glassLOCATION OF SAMPLING: Amtrak Wilmington manholeORIGINAL
(Red)COMPANY NAME: AmtrakORIGINAL
(Red)ADDRESS: Foot of Vandever Ave.Wilmington, DE 19801COLLECTOR'S NAME: Jimmy Balasingham (C.V.I.) TELEPHONE NO: (302) 731-1550DATE SAMPLED: 12/10/87
12/11/87TIME SAMPLED: 1300

HAZARDOUS SAMPLES ONLY

TOXIC PRODUCING WASTES

WASTE CODE: _____ DOT
_____ EPA
_____ STATE ()

FIELD INFORMATION: _____

ANALYSIS REQUIRED (LIST)

PCB in WaterRELINQUISHED BY: Amtrak RECEIVED BY: Jimmy Balasingham 12/11/87 1300
Jimmy Balasingham

RELINQUISHED BY: _____ RECEIVED BY: _____

RELINQUISHED BY: _____ RECEIVED BY: _____

METHOD OF SHIPMENT: _____

METHOD OF DISPOSAL: _____

PERIODIC SELF MONITORING REPORT

ORIGINAL Pg. 7 of 7
ORIGINAL
(Red)Reporting Period : Jan-June / July-Dec 19 88

PERMIT NO. W-85-04

REPORT DATE June 30, 1988

INDUSTRIAL USER : NATIONAL RAILROAD PASSENGER CORP., WILMINGTON

PARAMETER : CHROMIUM (T) NICKEL COPPER ZINC P C B

LIMIT mg/l : 6.0 1.5 5.0 15.0 -
Monthly Average

MONTH -	<u>Jan</u>	: <u><0.05 mg/L</u>	<u><0.05 mg/L</u>	<u>0.05 mg/L</u>	<u>0.09 mg/L</u>	<u>10 ppb</u>
MONTH -	<u>Feb</u>	: <u><0.05 mg/L</u>	<u><0.05 mg/L</u>	<u>0.05 mg/L</u>	<u>0.1 mg/L</u>	<u>5 ppb</u>
MONTH -	<u>MAR</u>	: <u><0.05 mg/L</u>	<u><0.05 mg/L</u>	<u><0.02 mg/L</u>	<u>0.01 mg/L</u>	<u>5 ppb</u>
MONTH -	<u>April</u>	: <u><0.05 mg/L</u>	<u>0.005 mg/L</u>	<u><0.02 mg/L</u>	<u><0.02</u>	<u>5 ppb</u>
MONTH -	<u>MAY</u>	: <u><0.05 mg/L</u>	<u><0.05 mg/L</u>	<u><0.02 mg/L</u>	<u>0.02 mg/L</u>	<u>10 ppb</u>
MONTH -	<u>June</u>	: <u><0.05 mg/L</u>	<u><0.05 mg/L</u>	<u><0.02 mg/L</u>	<u><0.02 mg/L</u>	<u>5 ppb</u>

FLOW DURING REPORTING PERIOD :

AVERAGE 25,000 GPD MAXIMUM _____ GPD

SAMPLING METHOD : All samples are daily time-proportioned composites over the period of the discharge except as noted below - (indicate sample date, parameter, reason)

METHODS OF ANALYSIS : Conform to those approved by the US EPA except -

Results indicate that the wastewater discharge standards are being met on a consistent basis ✓ YES NO. If 'NO' explain on a separate sheet what steps are being taken to achieve consistent compliance.

I HEREBY CERTIFY THAT THIS REPORT IS ACCURATE TO THE BEST OF MY KNOWLEDGE

Authorized Representative
NAME : William J. Williams Jr.DATE June 30, 1988TITLE : Sup. Reg. Environment

COOPERATIVE VENTURES, INC.
PEDDLER'S VILLAGE - SUITE 3A
NEWARK, DE 19702
(302) 731-1550

ORIG. NA.
(Red)

ORIGINAL
(Red)

ANALYTICAL REPORT # C46.14950.7
DATE 5/29/87
DATE SAMPLED 5/12 - 5/13
DATE RECEIVED 5/13
SAMPLED BY CVI/JW
LOG DATE 133

Mr. Wayne C. La Marche, Manager
Safety/Environmental Control
National Railroad Passenger Corp.
Wilmington Maintenance Facility
Foot of Vandever Avenue
Wilmington, DE 19801

REPORT OF ANALYSIS

COMPOSITE 002A	DIELDRIN	PCB	TRICHLORETHYLENE
ANALYSIS: DATE	5/22	5/22	5/22
TIME	0930	0900	1330
TECH	DR	DR	DR
SAMPLE RESULT	< 1 ppb	< 1 ppb	151 ppb
DUPLICATE	< 1 ppb	< 1 ppb	149 ppb
SPIKE AMOUNT	6.	10.	41.
% RECOVERY	95%	97%	93%
METHOD USED	EPA 608	EPA 608	EPA 601

GRAB 002A	OIL & GREASE	PH	SURFACTANTS (MBAS)
ANALYSIS: DATE	5/18	5/13	5/29
TIME	1230	1445	1530
TECH	MW	MW	JM
SAMPLE RESULT	< 1 ppm	5.75	0.42
DUPLICATE	< 1 ppm	5.70	0.41
SPIKE AMOUNT	N/A	N/A	.65
% RECOVERY	N/A	N/A	91%
METHOD USED	EPA 413.1	EPA 150.1	EPA 425.1


David W. Reber, Tech. Dir.

COOPERATIVE VENTURES, INC.
PEDDLER'S VILLAGE, SUITE 3A
NEWARK, DE 19702
(302) 731-1550

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(Red)

ANALYTICAL REPORT # C46.14950.7
DATE 5/29/87
DATE SAMPLED 5/13 - 5/14
DATE RECEIVED 5/14
SAMPLED BY CVI/JW
LOG DATE 134

Mr. Wayne C. La Marche, Manager
Safety/Environmental Control
National Railroad Passenger Corp.
Wilmington Maintenance Facility
Foot of Vandever Avenue
Wilmington, DE 19801

REPORT OF ANALYSIS

COMPOSITE 001	PCB	TRICHLOROETHYLENE
ANALYSIS: DATE	5/22	5/22
TIME	0900	1400
TECH	DR	DR
SAMPLE RESULT	< 1 ppb	< 1 ppb
DUPLICATE	< 1 ppb	< 1 ppb
SPIKE AMOUNT	10.	41.
% RECOVERY	98%	95%
METHOD USED	EPA 608	EPA 601

GRAB 001	OIL & GREASE	PH	SURFACTANTS (MBAS)
ANALYSIS: DATE	5/18	5/14	5/29
TIME	1430	1500	1530
TECH	MW	MW	JM
SAMPLE RESULT	< 1	6.92	0.40
DUPLICATE	< 1	6.92	0.40
SPIKE AMOUNT	N/A	N/A	.65
% RECOVERY	N/A	N/A	93%
METHOD USED	EPA 413.1	EPA 150.1	EPA 425.1


David W. Reber, Tech. Dir.

Preliminary Assessment Report
Amtrak Wilmington Refueling Facility
February, 1993

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APPENDIX F

APPENDIX F

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(Red)

TELEPHONE LOG

April 6, 1993

Conversation with Mr. Merrit Tappan of the Storm Sewer Discharge Plant of the City of Wilmington. The Amtrak WMF has a storm sewer discharge permit no. W-85-04 to the sewer system of the City of Wilmington (1988-1993).

According to Mr. Tappan, an analysis is performed every six months of the release to the system after pretreatment on the site for PCB's, nickel, copper, zinc, and total chromium (see Appendix F). None of these contaminants had a concentration above the parameters.

Preliminary Assessment Report
Amtrak Wilmington Refueling Facility
February, 1993

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APPENDIX G

[illegible]

[illegible]

Permit Cond.	DO		pH		DO	MBAS	TCE	DIEL
	A (1/4) 10	M 15	MIN 6.0	MAX 9.0	MAX ug/L	MAX ---	MAX ug/L	MAX ug/L
Sept. 1989	9	9	6.3	6.4	<1	0.02	80	1
Aug. 1989	11	12	6.5	6.6	<1	0.02	23	<1
Jul. 1989	9	10	6.24	6.24	<1	0.02	27	<1
Jun. 1989	<5	<5	6.50	6.50	<1	0.02	70	2
May 1989	<1	<1	6.78	6.81	<1	0.02	23	1
Apr. 1989	<5	<5	7.63	7.71	<1	0.02	29	3
Mar. 1989	<5	<5	7.58	7.64	<1	0.02	163	3
Feb. 1989	6	6	5.97	6.03	<1	0.05	137	56
Jan. 1989	<5	5	6.49	6.54	<1	0.02 (NRP)	63	
Dec. 1988	5	5	6.57	6.61	<1	0.02	43	6
Nov. 1988	<5	<5	6.59	6.63	<1	0.4	26	3
Oct. 1988	<5	<5	6.81	6.83	<1	4.06	29	2
Permit Cond.								
Sept. 1990	4	4	6.4	6.4	<1	0.02	<1	<1
Aug. 1990	6	6	6.3	6.3	<1	0.02	<1	<1
Jul. 1990	6	8	6.4	6.5	<1	0.02	<1	<1
Jun. 1990	5	5	6.4	6.4	<1	0.02	<1	<1
May 1990	6	6	6.1	6.1	<1	0.02	<1	<1
Apr. 1990	5	5	6.49	6.49	<1	0.02	3	<1
Mar. 1990	5	5	6.6	6.6	<1	0.02	<1	<1
Feb. 1990	5	5	6.1	6.1	<1	0.02	<1	<1
Jan. 1990	4	4	6.4	6.4	<1	0.02	<1	<1
Dec. 1989	5	5	6.4	6.4	<1	0.02	<1	<1
Nov. 1989	5	5	6.58	6.62	<1	0.02	<1	<1
Oct. 1989	5	5	6.4	6.4	<1	0.02	98	2

AMTRAK 002A

AMTRAK	001
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ORIGINAL
(Red)

AMTRAK DE 0050962 001

CMR DATA	O&G		PH		PCB	MBAS	TCE						
	A	M	MIN	MAX	MAX	MAX	MAX						
Permit Cond.	(14)												
	10	15	6.0	9.0	---	---	---						
Sep. 1989			NO FLOW										
Aug. 1989			NO FLOW										
Jul. 1989			NO DISCHARGE										
Jun. 1989	25	25	6.52	6.54	41	1.02	1						
May 1989	3	3	7.19	7.24	41	1.02	41						
Apr. 1989	NO	DISCHARGE											
Mar. 1989	NO	DISCHARGE											
Feb. 1989	NO	DISCHARGE											
Jan. 1989													
Dec. 1988													
Nov. 1988													
Oct. 1988	NO	-	NO	DISCHARGE									

Permit Cond.													
Sep. 1990			NO FLOW										
Aug. 1990			NO FLOW										
Jul. 1990			NO FLOW										
Jun. 1990			NO FLOW										
May 1990			NO FLOW										
Apr. 1990			NO FLOW										
Mar. 1990			NO FLOW										
Feb. 1990			NO FLOW										
Jan. 1990			NO FLOW										
Dec. 1989			NO FLOW										
Nov. 1989			NO FLOW										
Oct. 1989			NO FLOW										

AMTRAK 001

ANALYSIS REPORT: Trace Organics

1959 091919

PARAMETER	LABORATORY LOG NO.									
	CONCN, UNITS	1709								
CHLORINATED PESTICIDES/PCB'S, EPA Method No. 608, 8080										
Aldrin	ug/l	NT								
alpha-BHC										
beta-BHC										
delta-BHC										
gamma-BHC										
Chlordane										
4,4'-DDD										
4,4'-DDE										
4,4'-DDT										
Dieldrin										
Endosulfan I										
Endosulfan II										
Endosulfan sulfate										
Endrin										
Endrin aldehyde										
Heptachlor										
Heptachlor epoxide		✓								
Toxaphene		ND								
PCB-1016										
PCB-1221										
PCB-1232		✓	✓							

~~ORIGINAL~~
~~(Red)~~

[illegible]

NT = Not Tested

ND = None detected

<# = Below minimum detection limit; not quantified

Approvals:

ANALYST M K McMahon
f.i. / i.i. / surname

DATE 1/2/89

GROUP LEADER K A Knowles
f.i. / i.i. / surname

DATE 6-2-89

REVISSED: 02-22-88

Location of NPDES Outfalls

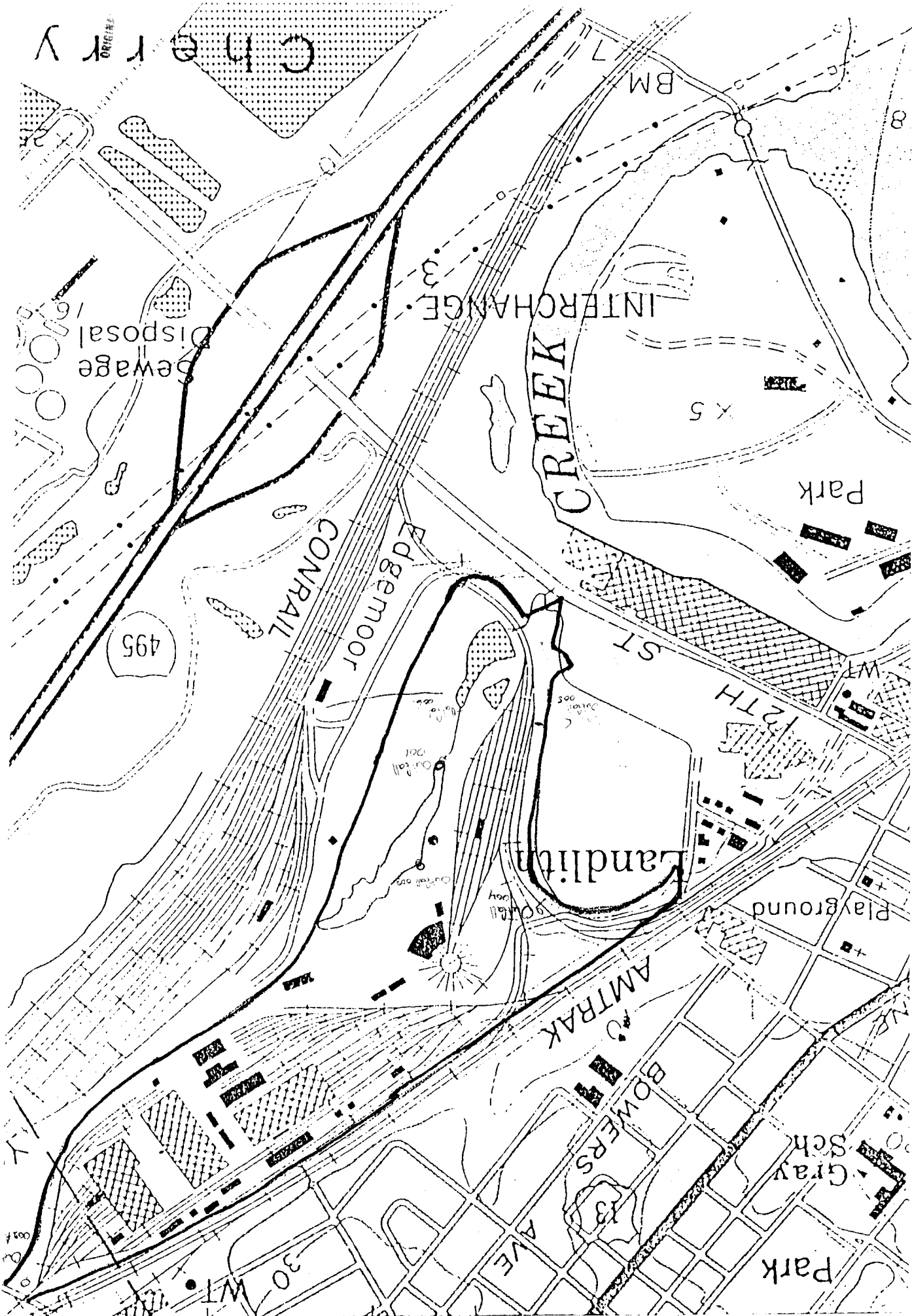


TABLE 1 - Concentration of PCBs in soils collected at the Wilmington Maintenance Facility, Wilmington, Delaware. Sample locations are shown in Figures 2, 3 and 4. ND means not detectable.

<u>Sample No.</u>	<u>Date Collected</u>	<u>Concentration PCBs (mg/kg)</u>	<u>Description</u>	<u>Location</u>
2078-28B	6/11/80	0.28	Black fill	East side of main road, 150 feet north of mainline bridge
2078-29	6/11/80	0.386	Black fill	East side of main road, 800 feet north of entrance to facility at right angle bend in road
2078-30	6/11/80	9.53	Black fill	Tie dump area, 150 feet from main road near center of east side of area
2078-31	6/11/80	0.0914	Black fill	Tie dump area on center of north side near edge of marsh vegetation
2078-32	6/11/80	0.294	Black fill	Tie dump area on northwest side about 50 feet from mainline tracks
2078-33	6/11/80	0.0851	Black to tan fill	Southwest corner of tie dump area
2078-34	6/11/80	0.0491	Black fill	Decommissioned locomotive storage area on east side
2078-35	6/11/80	0.0305	Black fill	Center of decommissioned locomotive storage area,
2078-36	6/11/80	0.0268	Black fill	
2078-37	6/11/80	1.6	Black fill	
2078-38	6/11/80	0.0775	Black fill	West side of transformer storage area
2078-39	6/11/80	0.0117	Black fill	East side of transformer storage area
2078-40	6/17/80	23.1	Black fill	East side of main road at high tension Tower 13
2078-41	6/17/80	2.68	Black fill	East side of main road at high tension Tower 17 from beneath puddle
2078-42	6/17/80	0.0467	Black fill	25 feet east of high tension Tower 15 on main road

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ORIGINAL
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<u>Sample No.</u>	<u>Date Collected</u>	<u>Concentration PCBs (mg/kg)</u>	<u>Description</u>	<u>Location</u>
2078-43	6/17/80	894	Black fill	Drum storage area near northwest side of Tank 15
2078-44	6/17/80	21.0	Black fill	Drum storage area near northeast side of Tank 15
2078-45	6/17/80	1.35	Black fill	Drum storage area, east side between 10th and 11th rows from Tank 15
2078-46	6/17/80	7.50	Black fill	Drum storage area, west side between 8th and 9th row from Tank 15
2078-47	6/17/80	3.59	Black fill	Drum storage area, east side in 20th row from Tank 15
2078-48	6/17/80	26.0	Black fill	Drum storage area, west side between 18th and 19th rows from Tank 15
2078-49	6/17/80	6.84	Black fill	Main road, northeast side of footbridge between high tension Towers 17 and 18
2078-50	6/17/80	24.8	Black fill	Parking lot, 25 feet east of high tension Tower 19, along mainline, 25 feet east of locker room on main road
2078-51	6/17/80	0.0373	Black fill	25 feet east of locker room on main road
2078-52	6/17/80	9.70	Black fill	Parking lot on east side, 300 feet northeast of water tower
2078-53	6/17/80	ND	Brown fine to coarse sand	Road east side of yard, 3rd telephone pole plus 50 inches, northeast from round house
2078-54	6/17/80	0.0185	Black fill	2nd road west of Brandywine tributary, 200 feet northwest from oil tank in locomotive cleaning area
2078-55	6/17/80	9.76	Brown fine to coarse sand	West side of locker room, 250 feet from high tension Tower 18
2078-56	6/17/80	0.0347	Brown to gray clayey silt with some peat	Marsh, east boundary ditch, east side, 30 feet north of edge of marsh, 30 feet east of creek, 300 feet south of Shellpot Creek, 30 feet west of Conrail Road

 ORIGINAL
(Red)

Woodward-Clyde Consultants

TABLE 1 (cont'd-3)

<u>Sample No.</u>	<u>Date Collected</u>	<u>Concentration PCBs (mg/kg)</u>	<u>Description</u>	<u>Location</u>
2078-57	6/17/80	ND	Brown to gray clayey silt with some peat	Marsh, east boundary ditch, 300 feet south of Shellpot Creek, 30 feet west of old ditch
2078-59	6/17/80	4.05	Black fill	Puddle in fill 400 feet south of Shellpot Creek, 450 feet east of Amtrak mainline
2078-60	6/17/80	1.58	Black fill	Puddle in parking lot, 15 feet southeast from southeast leg of water tower
2078-61	6/17/80	ND	Black fine to medium sand with some fill	Marsh, 10 feet west of high tension Tower 8, west of 12th Street access road
2078-62	6/17/80	5.95	Black fine to medium sand	Marsh, 45 feet south of high tension Tower 220, west of 12th Street access road
2078-63	6/18/80	0.329	Black fill	Puddle, 200 feet northwest of round house, 75 feet west of south end of maintenance shed
2078-64	6/18/80	18.8	Black fill	Rail spur to Metroliner maintenance shed, 20 feet southeast of bridge over Shellpot Creek
2078-65	6/18/80	0.0307	Black fill	Amtrak mainline, east side at high tension Tower 20, north end of yard
2078-66	6/18/80	0.0211	Black fill	Amtrak mainline, west side at high tension Tower 14
2078-67	6/18/80	0.0483	Black fill	Diesel repair shop, 4th track from the east, 150 feet south of building
2078-68	6/18/80	0.638	Black fill	Locomotive cleaning area, 50 feet south of sand tower, between Tracks 2 and 3 from east
2078-73	6/18/80	0.0279	Black fill	Amtrak mainline, 100 feet north of overpass for main road east side

ORIGINAL
- 8 -
ORIGINAL
(Red)

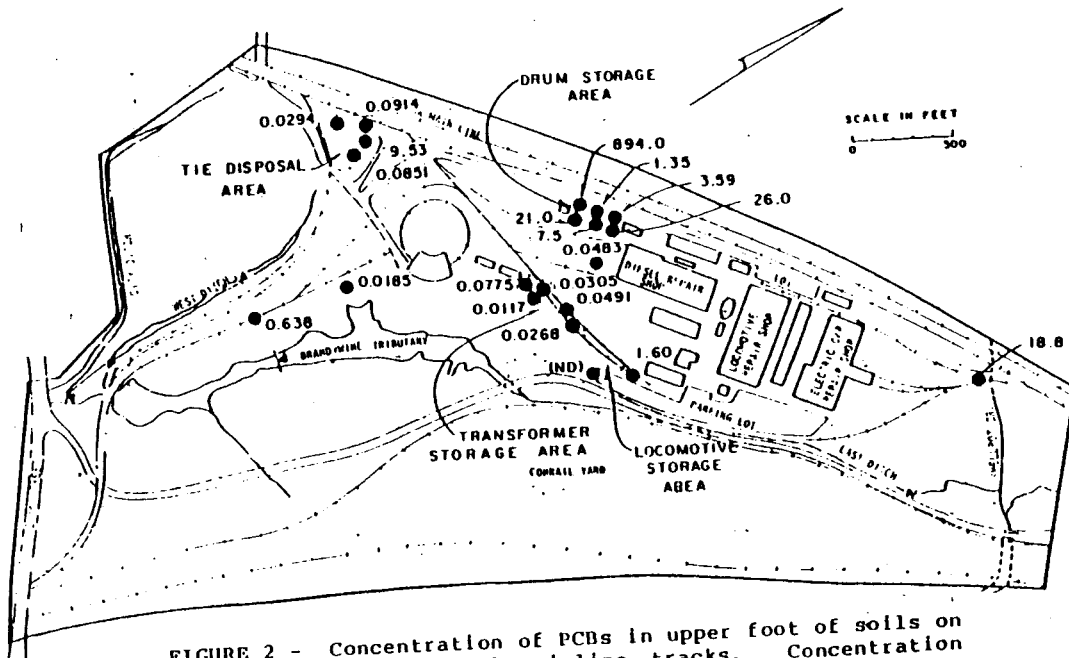


FIGURE 2 - Concentration of PCBs in upper foot of soils on roadways and mainline tracks. Concentration expressed in mg/kg.

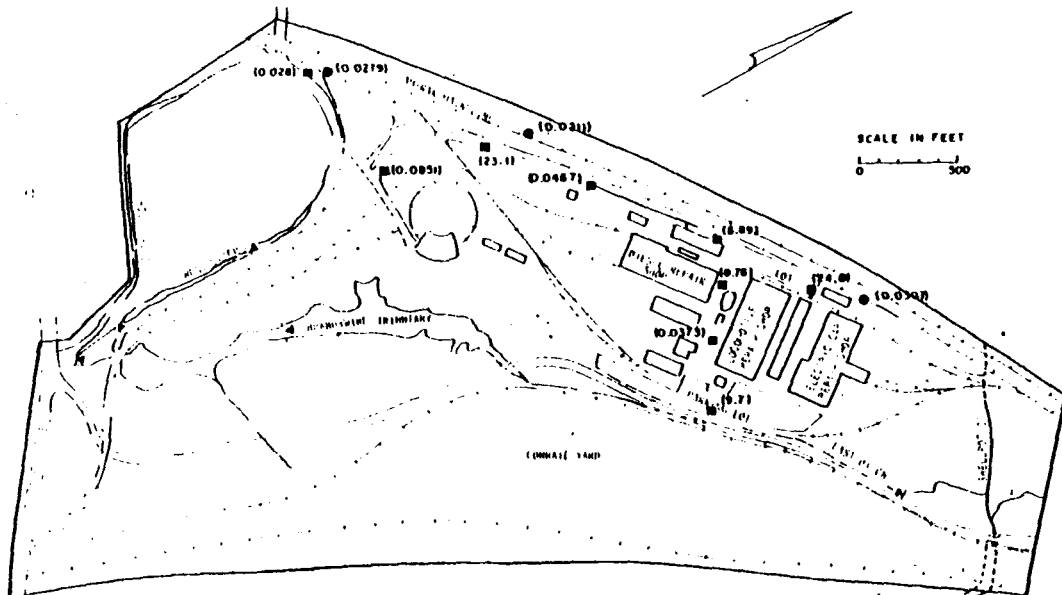


FIGURE 3 - Concentration of PCBs in upper foot of soils on roadways and mainline tracks. Concentration expressed in mg/kg. Circles are locations of samples taken on mainline tracks. Squares are locations of samples on roadways and parking lots.

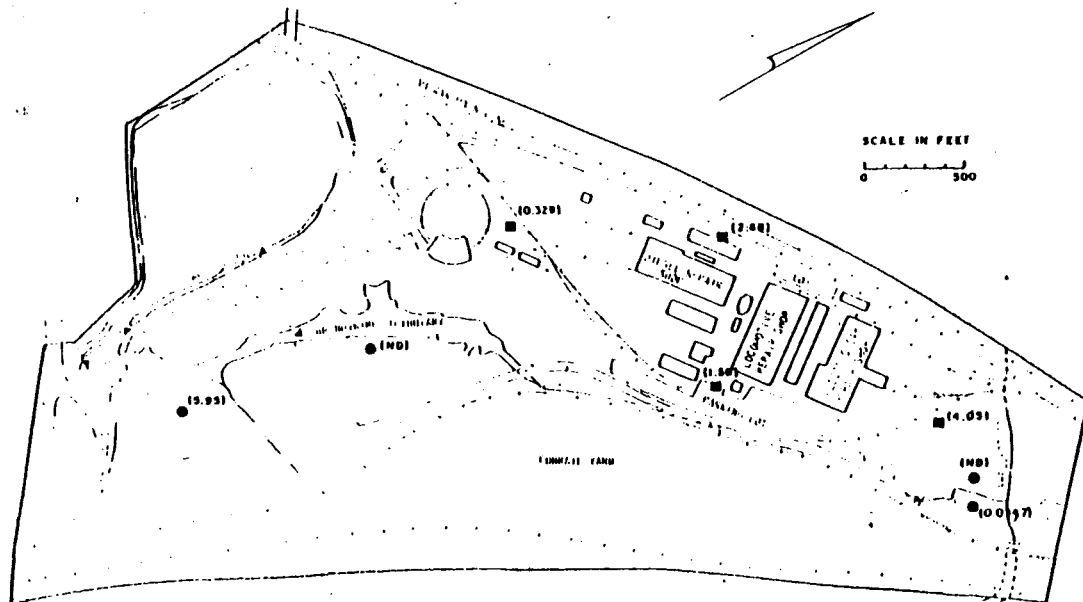


FIGURE 4 - Concentration of PCBs in soil samples collected from soils in marshes and puddles at the Wilmington Maintenance Facility. Values are expressed in mg/kg. ND means not detectable. Locations of marsh samples are shown with circles, and puddle locations are shown with squares.

ORIGINAL
(Red)

TABLE 2 - Concentration of PCBs in split spoon samples collected from borings at the Wilmington Maintenance Facility. Locations are shown in Figures 5, 6 and 7. ND means not detectable.

Well No.	Depth (ft)	Sample No.	Date Collected	Concentration (mg/kg)	Description
1	5-6.5	2078-86	7/07/80	1.68	Loose black sand, bricks and wood fill
1	10-11.5	2078-87	7/07/80	1.06	Soft gray peaty silty clay
1	20-21.5	2078-88	7/07/80	ND	Soft gray peaty silty clay
1	25-26	2078-89	7/07/80	ND	Soft gray peaty silty clay
1	35-36.5	2078-90	7/07/80	ND	Loose brown coarse to fine sand, trace gravel
3	5-6.5	2078-91	7/08/80	ND	Very loose to medium dense gray clayey silt, little coarse to fine sand
3	15-16.5	2078-92	7/08/80	ND	Loose brown coarse to fine sand to dense silt, clay; trace medium to fine sand
4	5-6.5	2078-93	7/08/80	0.156	Loose brown coarse to fine sand
4	10-11.5	2078-94	7/08/80	ND	Soft to firm gray silt and medium to fine sand, trace black clayey silt and peat seams
5	2-3.5	2078-055-2	7/09/80	ND	Very soft to stiff red and gray clayey silt, trace coarse to fine sand
5	5-6.5	2078-95	7/09/80	0.0762	Very soft to stiff red and gray clayey silt, trace coarse to fine sand
5	10-11.5	2078-055-10	7/09/80	ND	Loose brown coarse to fine sand, trace gravel, silt and organic material
5	15-16	2078-096	7/09/80	0.0026	Loose brown coarse to fine sand, trace gravel, silt and organic material

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(Red)

TABLE 2 (cont'd-2)

<u>Well No.</u>	<u>Depth (ft)</u>	<u>Sample No.</u>	<u>Date Collected</u>	<u>Concentration (mg/kg)</u>	<u>Description</u>
6	2-3.5	2078-056-2	7/09/80	ND	Black sand and cinder fill
6	5-6.5	2078-97	7/09/80	0.0229	Loose brown coarse to fine sand and silt seams
6	10-11.5	2078-056-10	7/09/80	0.0212	Medium dense gray fine sand and silt, trace medium sand
6	15-16.5	2078-98	7/09/80	0.233	Red clayey silt to black clayey silt and peat, trace fine sand
7	2-3.5	2078-057-2	7/09/80	0.786	Black sand, wood and cinder fill
7	5-6.5	2078-057-5	7/09/80	0.142	Very loose brown coarse to fine sand, silt
7	10-11.5	2078-99	7/09/80	0.0043	Very soft black silty clay to peat, trace fine sand
7	15-16.5	2078-100	7/09/80	0.100	Very soft black silty clay to peat, trace fine sand
8	2-3.5	2078-058-2	7/09/80	ND	Very soft gray to brown silty clay and woody peat
8	10-10.5	2078-101	7/09/80	0.329	Very soft gray to brown silty clay and woody peat
8	15-16.5	2078-102	7/09/80	ND	Very soft gray to brown silty clay and woody peat
13	5-6.5	2078-110	7/11/80	0.402	Medium dense gray silty fine sand, trace coarse to medium sand, oil smell
13	15-16.5	2078-111	7/11/80	ND	Brown coarse to fine sand, trace silt and gravel

ORIGINAL

-16-

ORIGINAL
(Red)

TABLE 2 (cont'd-3)

<u>Well No.</u>	<u>Depth (ft)</u>	<u>Sample No.</u>	<u>Date Collected</u>	<u>Concentration (mg/kg)</u>	<u>Description</u>
14	5-6.5	2078-112	7/11/80	0.140	Black sand and rubble fill
14	15-16.5	2078-113	7/11/80	0.286	Very loose red fine sand and silt
15	5-6.5	2078-114	7/11/80	0.0028	Very soft brown silty clay and peat, oily smell
15	15-16.5	2078-115	7/11/80	ND	Very soft brown silty clay and peat, oily smell
16	5-6.5	2078-116	7/11/80	ND	Very soft brown to gray silty clay, trace peat and coarse to fine sand
16	15-16.5	2078-117	7/11/80	ND	Very soft brown to gray silty clay, trace peat and coarse to fine sand
16	25-26.5	2078-118	7/11/80	ND	Dense gray coarse to fine sand and gravel, trace silt
18	5-6.5	2078-119	7/14/80	ND	Black sand, cinder and rubble fill
18	15-16.5	2078-120	7/14/80	ND	Very soft brown silty clay, trace peat

ORIGINAL
(Red)

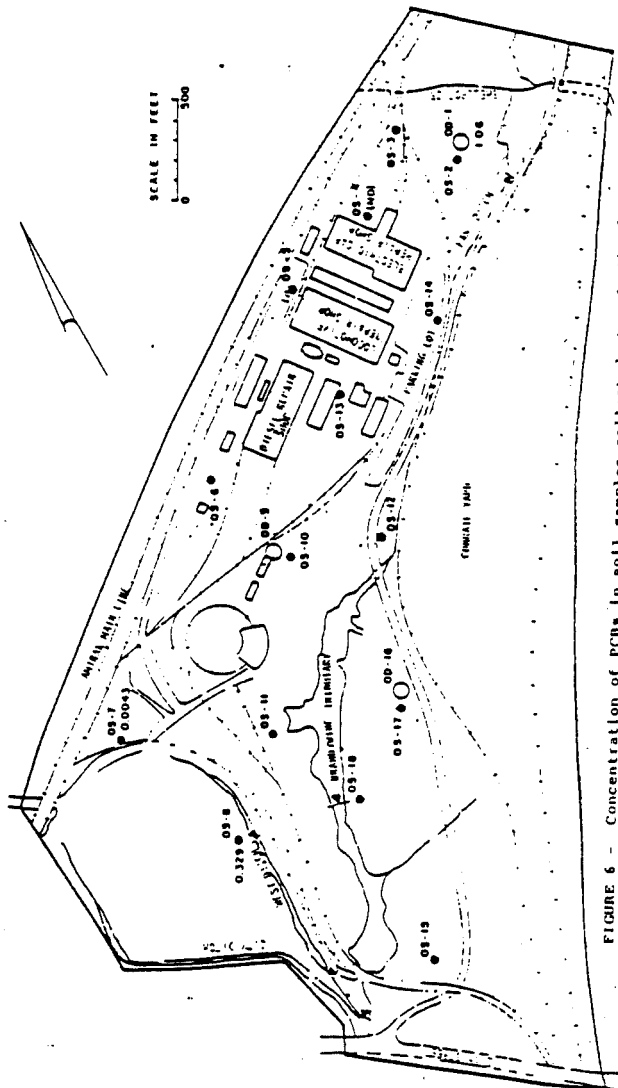


FIGURE 6 - Concentration of PCBs in soil samples collected at a depth of 10.0 to 11.5 feet below the surface at observation wells. Values are expressed in mg/kg. ND means not detected. Wells with no values means sample was not analyzed for PCBs.

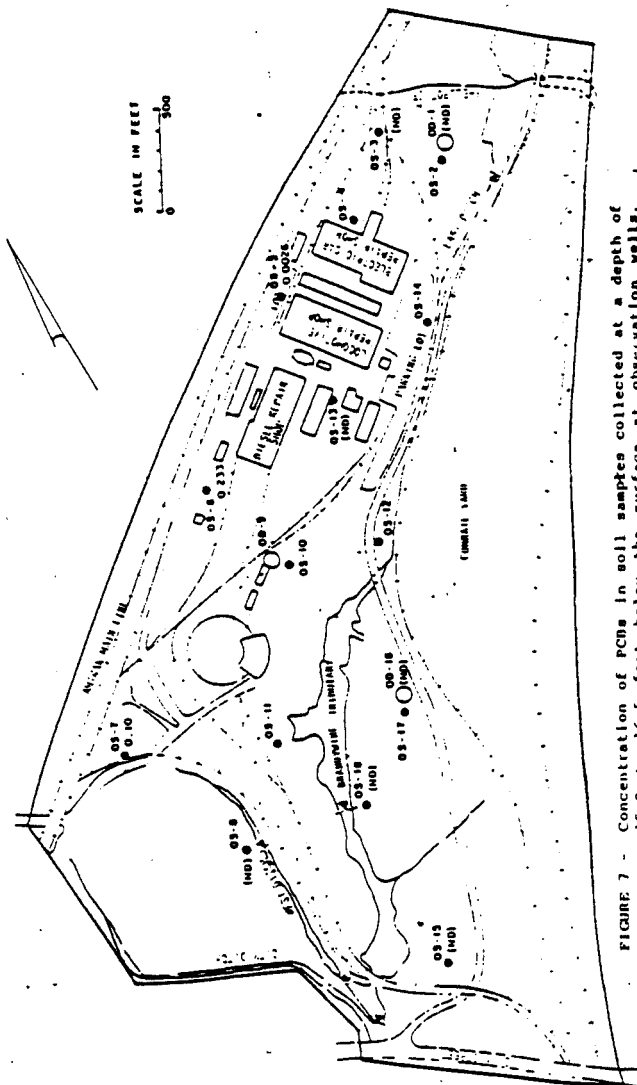
ORIGINAL -20-
(Red)

FIGURE 7 - Concentration of PCBs in soil samples collected at a depth of 15.0 to 16.5 feet below the surface at observation wells. Values are expressed in mg/kg. ND means not detected. Wells with no values means sample was not analyzed for PCBs.

ORIGINAL
(Red)

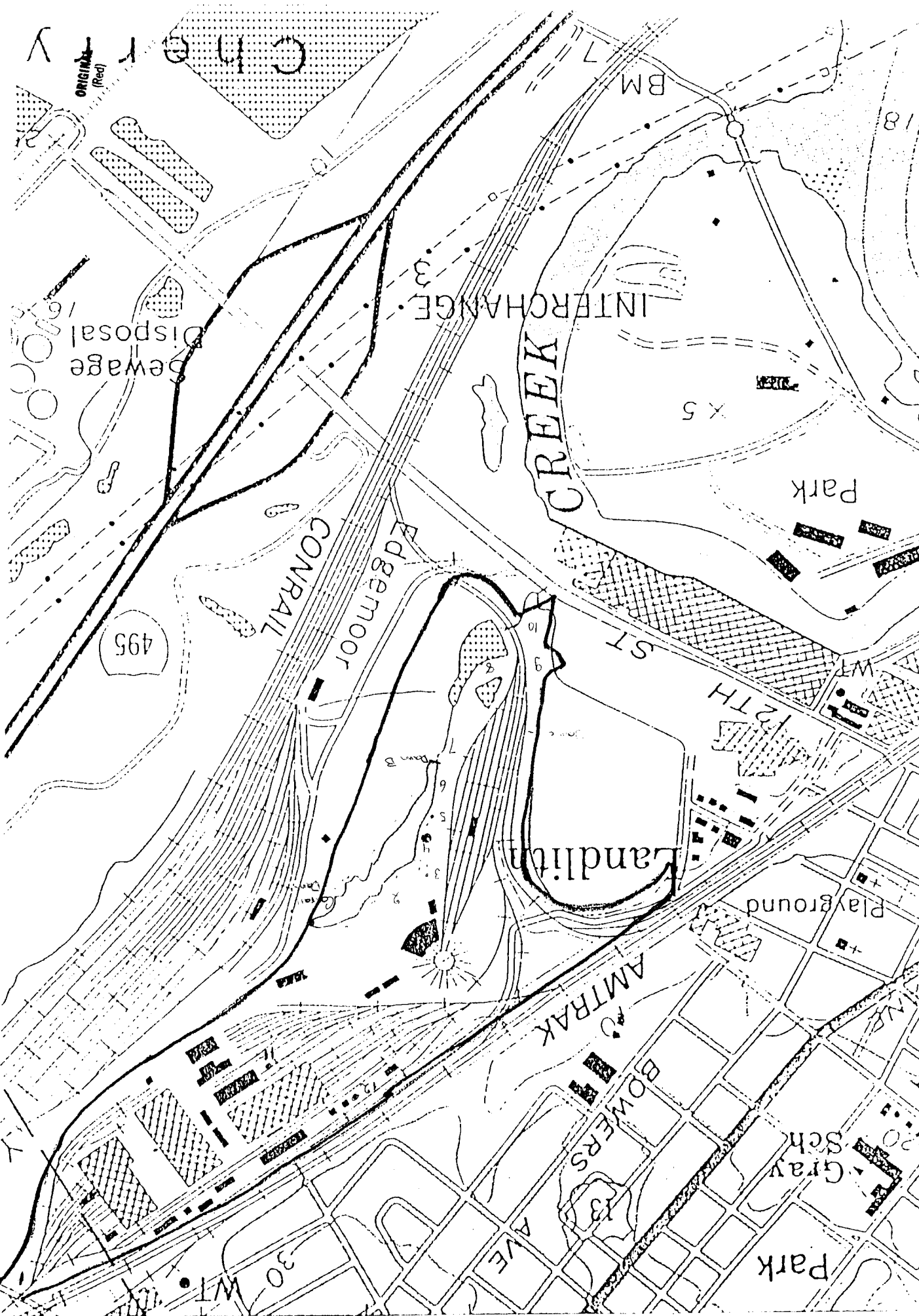


Figure 1 - Source location map, 1982

ORIGINAL
(Red)

Preliminary Assessment Report
Amtrak Wilmington Refueling Facility
February, 1993

APPENDIX H

Table 3. Results of oil and grease and PCB determinations on soil samples obtained at the Amtrak Wilmington Maintenance Facility, ^{ORIGINAL}
23-24 June 1982. _(Red)

Sample Number	Oil and Grease (mg/kg)	PCB (mg/kg)	Aroclor
1A	10188	473	1260
1B	7755	76.7	1260
1C	140884	257	1260
1D	49540	477	1260
1E	8786	330	1260
2A	1025	7.97	1260
2B	14621	7.15	1260
2C	7512	10.1	1260
2D	7841	4.52	1260
2E	50669	15.3	1260
2F	9558	7.09	1260
2G	21446	4.15	1260
2H	13571	0.39	1260
2I	38936	0.52	1260
2J	12174	0.28	1260
2K	16204	4.35	1260
2L	288	1.14	1260
2M	26817	13.0	1260
3A	5754	0.26	1260
3B	16128	0.40	1260
3C	7245	18.9	1260
3D	8537	4.56	1260
4A	25769	5.79	1260
4B	18364	3.54	1260
4C	70240	0.96	1260
4D	47160	0.58	1260
4E	25099	<0.10	1260
4F	7110	0.82	1260
5A	57578	<0.10	1260
5B	10160	<0.10	1260
5C	46759	0.43	1260
5D	69990	0.69	1260
5E	18314	2.91	1260
5F	24886	1.54	1260
6A	18407	1.62	1260
7A	13692	0.10	1260
7B	80990	0.70	1260
7C	24374	<0.10	1260
7D	13718	<0.10	1260
7E	8723	0.12	1260

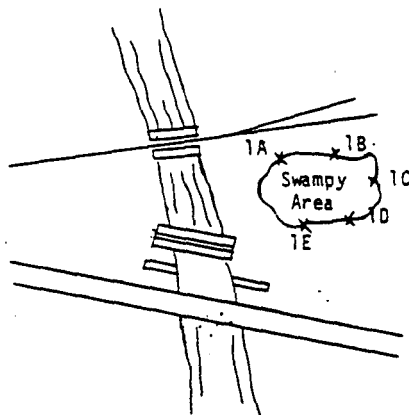
Table 3. Continued.

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ORIGINAL
(Red)

Sample Number	Oil and Grease (mg/kg)	PCB (mg/kg)	Aroclor
8A	4008	0.15	1260
8B	1445	0.45	1260
8C	2580	0.10	1260
8D	90359	0.28	1260
8E	19867	0.17	1260
8F	54044	0.25	1260
8G	12527	0.39	1260
8H	13275	4.14	1260
9A	156	0.10	1260
9B	1578	0.38	1260
9C	15870	1.17	1260
9D	668	1.48	1260
10A	8892	0.62	1260
10B	82388	0.77	1260
11A	14032	22.0	1260
11B	3299	123	1260
11C	3502	19.0	1260
11D	25410	1475	1254
12A	12100	12.3	1260
12B	611	253	1260
12C	8359	50.0	1260
12D	6071	185	1260
12E	9093	66.9	1260
12F	20553	174	1260

Total G4 sample



X One Foot Deep Core
Sampling Site

FIGURE 1: SAMPLING AREA 1

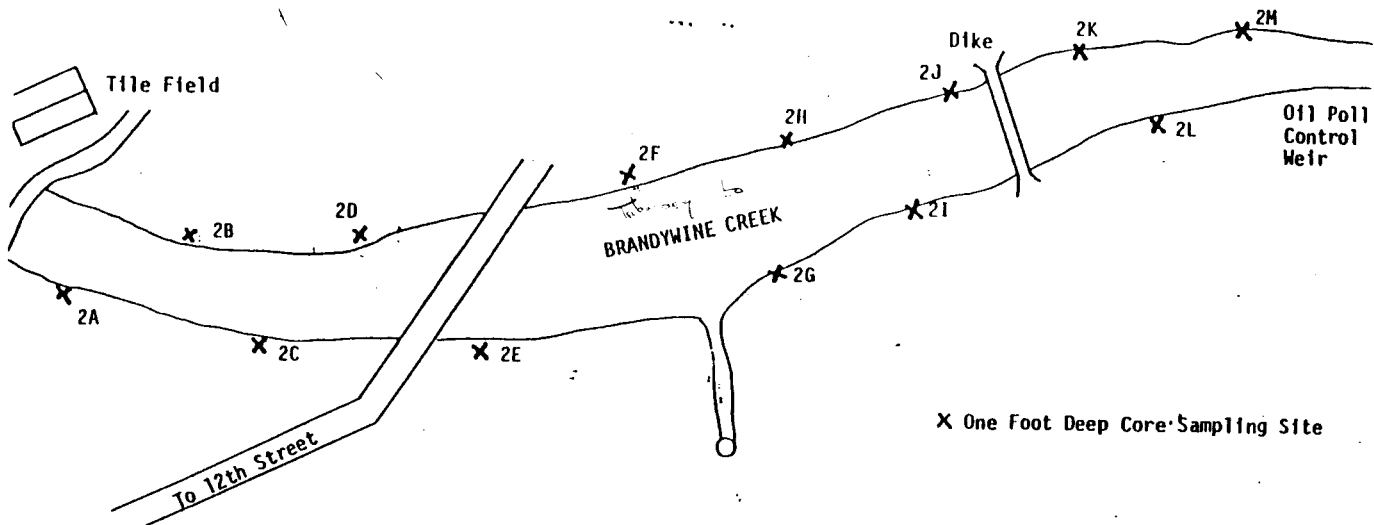


FIGURE 2: SAMPLING AREA 2

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(Red)

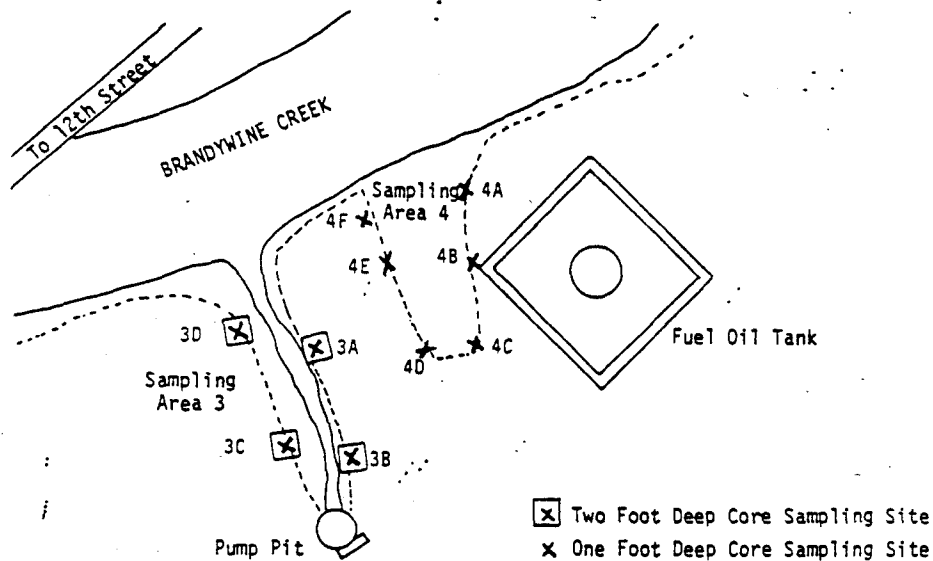


FIGURE 3: SAMPLING AREAS 3 & 4

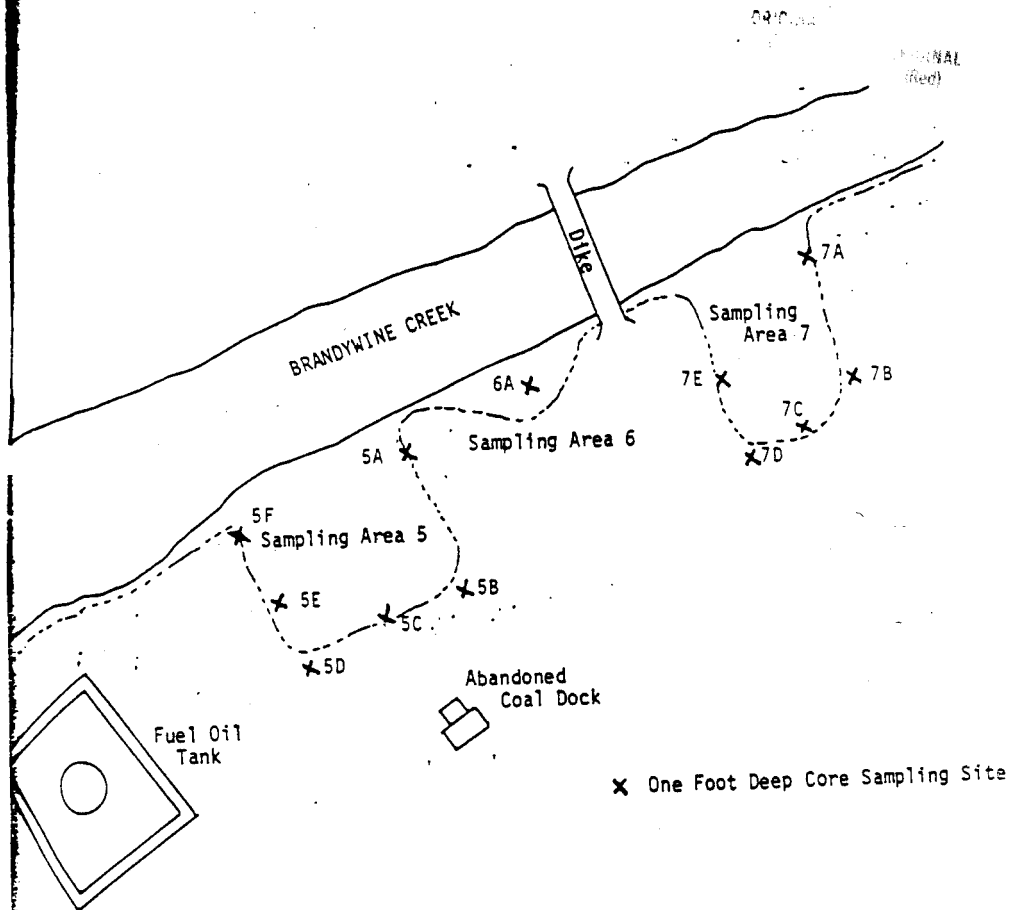


FIGURE 4: SAMPLING AREAS 5, 6, & 7

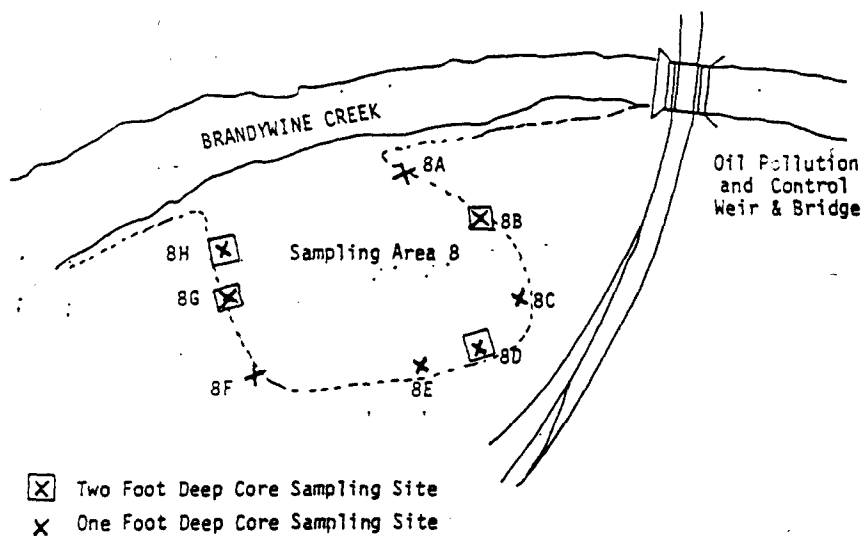


FIGURE 5: SAMPLING AREA 8

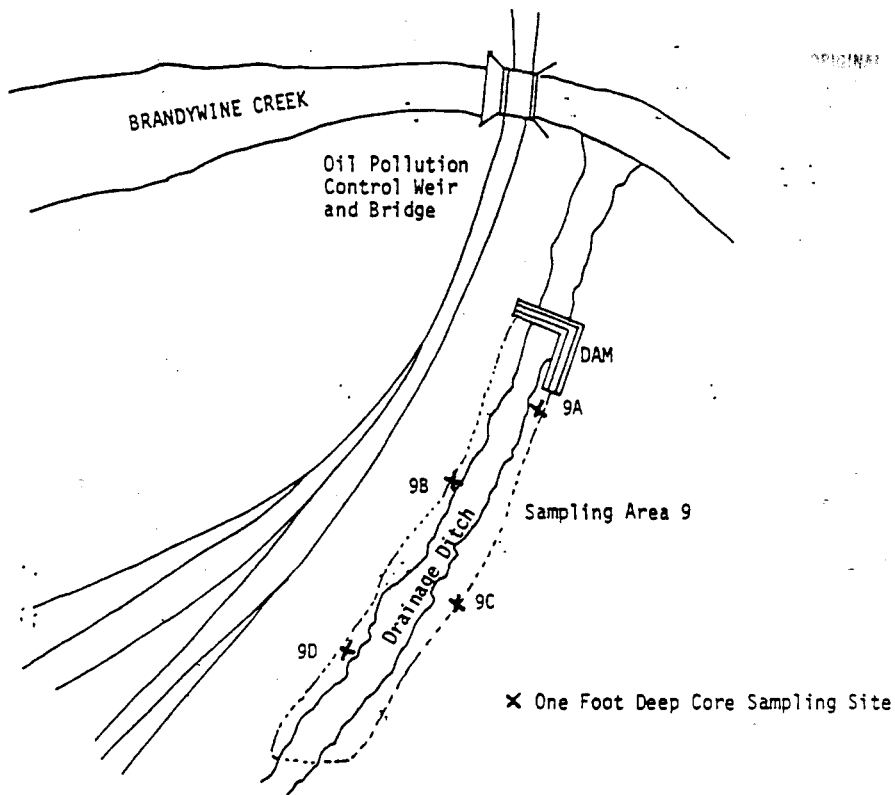


FIGURE 6: SAMPLING AREA 9

ORIGINAL
(Fig.)

ORIGINAL

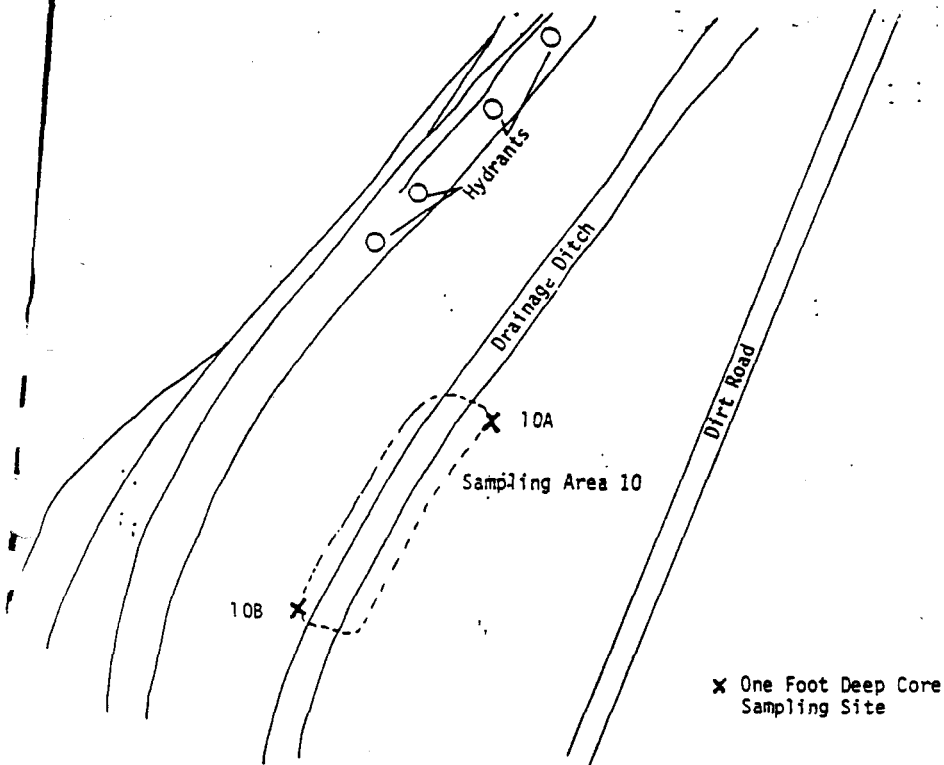


FIGURE 7: SAMPLING AREA 10

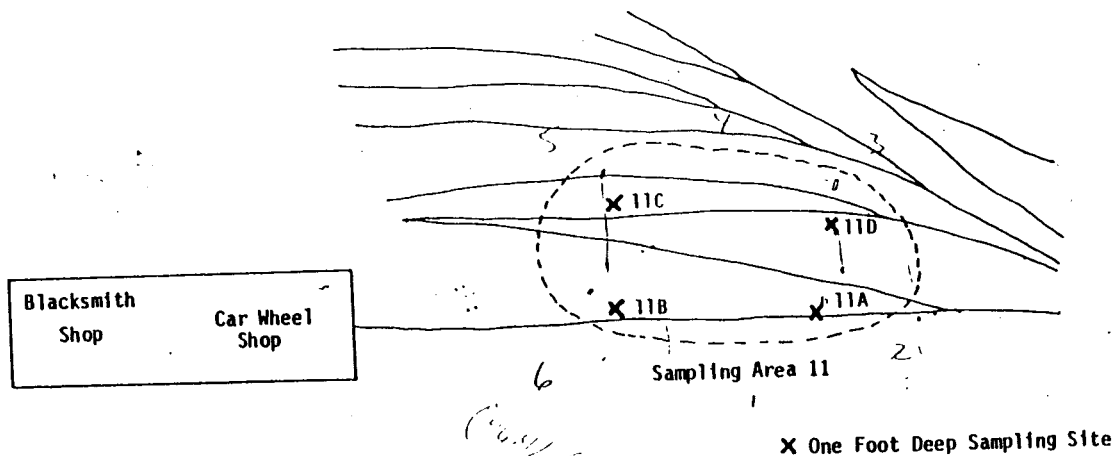
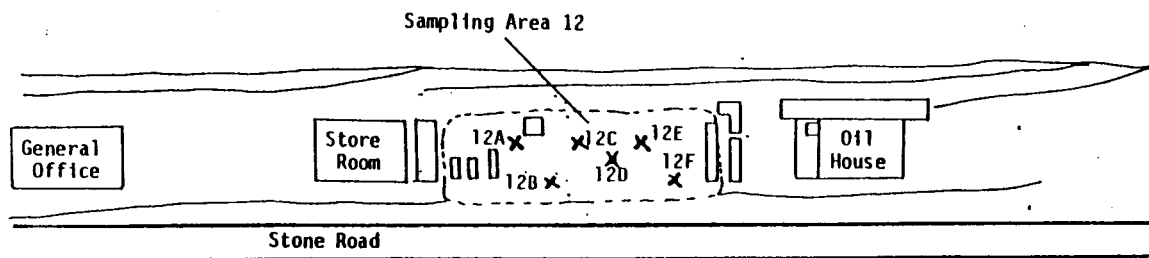


FIGURE 8: SAMPLING AREA 11



X One Foot Deep Sampling Site

FIGURE 9: SAMPLING AREA 12

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(Red)

Preliminary Assessment Report
Amtrak Wilmington Refueling Facility
February, 1983

APPENDIX I

4 November 1983

"Sample A"

Sample Number	Sampling Depth (Inches)	PCB Concentration (mg/kg)
1	6	<2.0
2	6	<2.0
3	6	8.0
4	6	23
5	6	<2.0
6	12	<2.0
7	6	<2.0
8	6	14
9	6	460
10	6	890
11	6	140
12	12	99
13	6	55
14	6	65
15	6	680
16	6	2200
17	6	150
18	6	270
19	6	39
20	6	64
21	6	5.0
22	6	920
23	6	21
24	12	23
25	6	20
26	6	32

Approved By:

Richard S. Rodgers

Richard S. Rodgers, Manager
Environmental Chemistry Laboratory
10 November 1983

ORIGINAL
(Rev)

PCB in Soil Analysis
AMTRAK Wilmington Maintenance Facility
4 November 1983
Page 2

Number	Sampling Depth (inches)	PCB Concentration (mg/kg)
27	6	760
28	6	212
29	6	453
30	6	833
31	6	571
32	6	133
33	6	150
34	12	14
35	6	20
36	6	312

Approved By: Richard S. Rodgers
Richard S. Rodgers, Manager
Environmental Chemistry Laboratory
10 November 1983

ORIGINAL

Results of PCB Analysis Performed on Soil Samples Collected from
AMTRAK's Wilmington Maintenance Facility
14 November 1983

"Sample B"

Sample Number	Concentration mg/kg
1	720
2	14.7
3	89
4	290
5	700
6	550
7	13.1
8	9.4
9	230
10	17.9
11	81
12	4480
13	46
14	34
15	12.8
16	150
17	45
18	6.7
19	200
20	76
21	6.6
22	7.2
23	23.8
24	14.7
25	130
26	21.5
27	21.0
28	45
29	<1.0
30	46

ORIGINAL
(Red)

ORIGINAL
(Red)

Sample Number	Concentration mg/kg
31	1.6
32	22.1
33	5.1
34	1.4
35	68
36	26
37	23.3
38	5.7
39	92
40	340
41	205
42	290
43	6.6
44	18.4
45	170
46	
47	120
48	28
49	270
	26

Approved By:

Richard S. Rodgers

Richard S. Rodgers, Manager
Environmental Chemistry Laboratory
27 December 1983

ORIGINAL
(Red)

ORIGINAL
(Red)

Results of PCB in Soil Analysis Performed on Samples Collected from
 AMTRAK's Wilmington Maintenance Facility
 December 1903 Through January 1904
 (please consult map for actual sample locations)

"Sample C"

Sample Number	Depth	Concentration (mg/kg)	Sample Number	Depth	Concentration (mg/kg)
1	6"	11.6	27	6"	3.6
2	6"	<1.0	28	6"	2.2
3	6"	65	29	6"	3.0
4	6"	11.8	30	6"	249
5	6"	11.8	31	6"	26
6	6"	280	32	6"	43
7	6"	21.4	33	6"	14.0
8	6"	33	34	6"	22.8
9	6"	1500	35	6"	1.7
10	6"	115	36	6"	2.1
11	6"	24.4	37	6"	<1.0
12	6"	5770	38	6"	7.5
13	6"	66	39	6"	5.1
14	6"	6.1	40	6"	304
15	6"	104	41	6"	87
16	6"	92	42	6"	4.4
17	6"	44	43	6"	4.9
18	6"	42	44	6"	21.4
19	6"	30	45	6"	45
20	6"	52	46	6"	10.1
21	6"	91	47	6"	96
22	6"	27	48	6"	52
23	6"	84	49	6"	15.0
24	6"	23.5	50	6"	28
25	6"	39	51	6"	12.1
26	6"	5.8	52	6"	53

ORIGINAL
 (Red)

Sample Number	Depth	Concentration (mg/kg)	Sample Number	Depth	Concentration (mg/kg)
53	6"	15.4	79	6"	770
54	6"	51	80	6"	140
55	6"	80	81	6"	1700
56	6"	160	82	6"	170
57	6"	840	83	6"	7.2
58	6"	<1.0	84	6"	42
59	6"	28	85	6"	1900
60	6"	5.1	86	6"	150
61	6"	7.0	87	6"	110
62	6"	38	88	6"	<1.0
63	6"	3.0	89	6"	25
64	6"	37	90	6"	14.2
65	6"	36	91	6"	82
66	6"	14.1	92	6"	890
67	6"	360	93	6"	340
68	6"	19.0	94	6"	48
69	6"	340	95	6"	6.3
70	6"	280	96	6"	33
71	6"	520	97	6"	<1.0
72	6"	24.4	98	6"	45
73	6"	1020	99	6"	5.9
74	6"	70	100	6"	<1.0
75	6"	750	101	6"	14.6
76	6"	560	102	6"	10.1
77	6"	310	103	6"	30
78	6"	290	104	6"	20.9

ORIGINAL
(Red)

Sample Number	Depth	Concentration (mg/kg)	Sample Num	Depth	Concentration (mg/kg)
105	6"	<1.0	131	24"	--
106	6"	6.3	132	18"	35
107	6"	1.1	133	24"	--
108	6"	9.4	134	18"	28
109	6"	<1.0	135	24"	--
110	6"	2.6	136	18"	81
111	6"	18.2	137	24"	60
112	6"	18.3	138	18"	2300
113	6"	--	139	24"	400
	6"	9.6	140	16"	3.2
115	6"	11.9	141	18"	85
116	6"	156	142	24"	83
117	6"	180	143	18"	72
118	6"	84	144	24"	66
119	6"	204	145	18"	28
120	6"	52	146	24"	--
121	6"	41	147	18"	46
122	6"	65	148	24"	--
123	6"	90	149	18"	43
124	6"	440	150	24"	--
125	6"	80	151	18"	7.8
126	6"	40	152	18"	24.6
127	6"	54	153	24"	--
128	6"	49	154	18"	1.8
129	16"	162	155	24"	--
130	18"	18.9	156	18"	<1.0

(--) Indicates sample not analyzed.

ORIGINAL
(Red)

Sample Number	Depth	Concentration (mg/kg)	Sample Number	Depth	Concentration (mg/kg)
157	24"	--	183	24"	--
158	6"	4.0	184	6"	160
159	6"	<1.0	185	6"	140
160	6"	<1.0	186	6"	2070
161	6"	3.3	187	6"	5.2
162	6"	<1.0	188	18"	<1.0
163	6"	5.5	189	6"	7.8
164	6"	<1.0	190	6"	8.4
165	6"	<1.0	191	6"	76
166	6"	<1.0	192	6"	7.0
167	6"	91	193	6"	37
168	18"	19.6	194	6"	13.0
169	6"	<1.0	195	6"	150
170	18"	<1.0	196	6"	270
171	24"	--	197	6"	29
172	6"	8.2	198	6"	2.5
173	18"	2.2	199	6"	<1.0
174	24"	2.5	200	6"	9.7
175	6"	220	201	6"	5.0
176	18"	80	202	6"	125
177	24"	30	203	6"	21.6
178	6"	6.2	204	6"	3.2
179	18"	1.7	205	6"	5.9
180	24"	--	206	6"	3.3
181	6"	2.2	207	6"	7.6
182	18"	2.1	208	6"	5.7

(--) Indicates sample not analyzed.

Sample Number	Depth	Concentration (mg/kg)
209	6"	10.6
210	6"	9.8
211	6"	9.4
212	6"	2.2
213	6"	<1.0
214	6"	226 -
215	6"	90
216	6"	14.0
217	6"	4.7
218	6"	30
219	6"	1590

Approved By: Richard S. Rodgers
 Richard S. Rodgers, Manager
 Environmental Chemistry Laboratory
 2 February 1983

ORIGINAL
(Red)

Preliminary Assessment Report
Amtrak Wilmington Refueling Facility
February, 1993

ORIGINAL
(Red)

APPENDIX J

DELAWARE RIVER BASIN

ORIGINAL
(Red)

01461300: BRANDYWINE CREEK AT WILMINGTON, DE

LOCATION.--Lat 39°46'09", long 75°34'25", New Castle County; Hydrologic Unit 02040205, on right bank in Rockford Park, 0.2 mi. downstream from Rising Sun Bridge, in Wilmington, and 4.2 mi. upstream from mouth.

DRAINAGE AREA.--314 mi.².

PERIOD OF RECORD.--October 1946 to current year. Prior to December 1946 monthly discharge only, published in WSP 1302.

REVISED RECORDS.--WSP 1432: 1948, 1950.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 68.23 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--No estimated daily discharges. Records good. Some diurnal fluctuation at low flow caused by mills upstream from station. Flow regulated since November 1973 by Marsh Creek Reservoir, capacity 7,230,000,000 gal, about 27 mi. upstream. No diversion just upstream from station by plant of E. I. du Pont de Nemours & Co. since June 13, 1960. Several measurements of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

PEAK DISCHARGES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 12	1145	*3,470	*6.43	No peak greater than base discharge.			

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
MEAN DAILY VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	167	176	190	760	491	327	652	498	280	248	161	106
2	157	176	173	578	421	372	637	463	266	204	147	100
3	151	172	220	522	425	460	599	444	239	202	136	101
4	145	171	1660	474	420	997	535	429	264	202	151	101
5	150	170	828	438	418	759	507	421	256	198	132	125
6	145	173	421	433	431	518	522	708	250	197	121	122
7	134	174	333	477	596	684	500	709	248	286	120	113
8	130	159	315	461	629	526	483	519	243	273	126	109
9	136	151	289	734	482	447	483	462	235	212	391	111
10	241	685	272	716	438	435	462	457	224	175	358	107
11	169	1270	260	654	424	419	429	431	214	156	276	101
12	162	344	252	2410	402	404	419	423	236	162	172	101
13	198	276	251	1140	433	400	429	421	251	1170	142	96
14	313	251	249	783	560	434	644	434	220	1000	127	118
15	214	235	290	881	582	543	616	412	196	375	134	134
16	180	228	605	1210	444	543	698	386	234	313	158	116
17	170	244	391	1350	381	443	540	367	536	258	134	136
18	190	245	478	791	391	768	494	375	1000	219	121	213
19	710	234	658	681	410	840	470	356	1060	191	137	163
20	298	221	417	650	477	556	452	349	376	183	696	155
21	225	213	439	710	442	491	1060	336	301	175	780	121
22	211	207	676	692	399	467	1260	336	272	174	255	108
23	248	243	503	562	371	911	751	322	274	182	185	104
24	757	284	1100	600	348	1160	720	319	275	178	164	109
25	339	243	742	559	354	730	857	309	251	157	150	822
26	262	221	516	501	352	640	614	318	239	232	142	545
27	223	209	466	535	340	654	560	306	221	324	135	253
28	202	212	459	457	333	678	536	314	208	208	132	134
29	196	209	551	445	---	601	514	304	203	177	129	132
30	188	192	717	444	---	725	504	283	209	190	122	123
31	177	---	1850	585	---	705	---	317	---	176	116	---
TOTAL	7188	7988	16571	22233	12194	18637	17967	12528	9291	8397	6450	4901
MEAN	232	266	535	717	435	601	599	404	310	271	208	163
MAX	757	1270	1850	2410	629	1160	1260	709	1060	1170	780	822
MIN	130	151	173	433	333	327	419	283	196	156	116	96
(1)	+1.8	-4.4	+4.4	-23.7	+5.9	+21.9	-3.9	-0.2	-1.3	0.0	+0.2	-3.2
MEAN#	234	262	539	693	441	623	593	404	309	271	208	160
CFSM#	0.74	0.83	1.72	2.21	1.40	1.98	1.90	1.29	0.98	0.86	0.66	0.51
IN#	0.86	0.93	1.97	2.53	1.46	2.29	2.11	1.48	1.10	0.99	0.76	0.57

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1947 - 1991, BY WATER YEAR (WY)

	MEAN	255	360	466	555	677	708	698	592	452	374	300	295
MAX	918	794	1306	1866	1610	1309	1773	1168	1343	1243	1436	1403	
(WY)	1980	1972	1984	1979	1979	1978	1983	1989	1972	1975	1955	1971	
MIN	80.6	117	129	119	225	230	223	190	149	92.5	81.9	99.6	
(WY)	1964	1966	1966	1981	1954	1981	1985	1963	1963	1963	1957	1964	

† Change in contents in Marsh Creek Reservoir, equivalent in cubic feet per second, provided by Pennsylvania Department of Environmental Resources.

* Adjusted for change in reservoir contents.

DELAWARE RIVER BASIN

43

01481500 BRANDYWINE CREEK AT WILMINGTON, DE--Continued

SUMMARY STATISTICS

FOR 1990 CALENDAR YEAR

FOR 1991 WATER YEAR

WATER YEARS 1947 - 1991

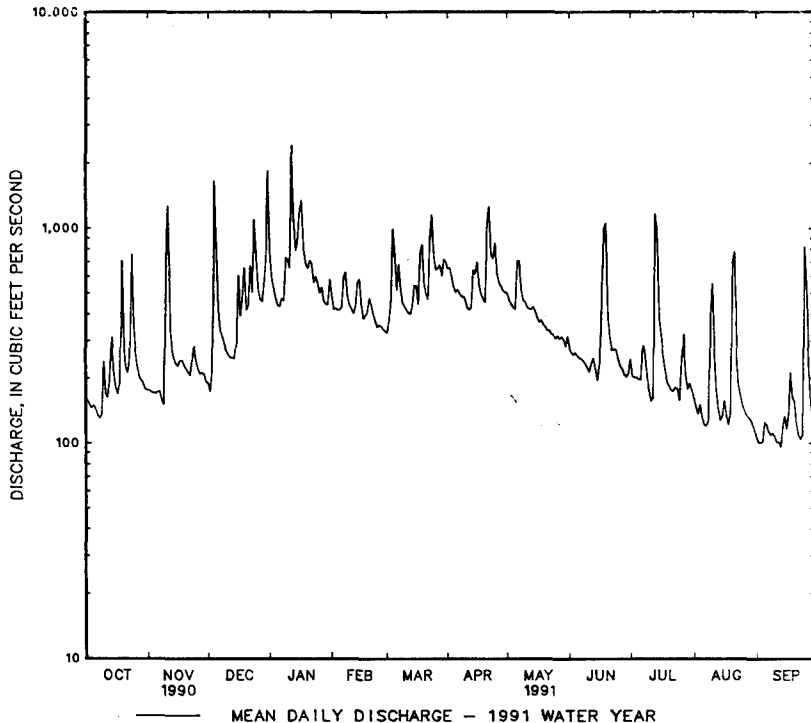
ANNUAL TOTAL	161051		144345				
ANNUAL MEAN	441		395			477	
ANNUAL MEAN*	444		395			502	
HIGHEST ANNUAL MEAN						835	1984
LOWEST ANNUAL MEAN						228	1981
HIGHEST ANNUAL MEAN*						839	1984
LOWEST ANNUAL MEAN*						229	1981
HIGHEST DAILY MEAN						14300	Jun 23 1972
LOWEST DAILY MEAN	3990	May 30	2410	Jan 12		56	Aug 23 1957
ANNUAL SEVEN-DAY MINIMUM	130	Oct 8	96	Sep 13		59	Aug 18 1957
INSTANTANEOUS PEAK FLOW	142	Oct 3	105	Sep 7		a29000	Jun 23 1972
INSTANTANEOUS PEAK STAGE	5450	May 30	3470	Jan 12		15.49	Jun 23 1972
INSTANTANEOUS LOW FLOW	7.04	May 30	6.43	Jan 12		630	Dec 26 1948
ANNUAL RUNOFF (CFS)*	118	Oct 9	88	(b)		1.60	
ANNUAL RUNOFF (INCHES)*	1.41		1.26			21.71	
10 PERCENT EXCEEDS	19.19		17.09			880	
50 PERCENT EXCEEDS	730		716			337	
90 PERCENT EXCEEDS	372		322			134	
90 PERCENT EXCEEDS	190		135				

* Adjusted for change in reservoir contents since November 1973.

a From rating curve extended above 18,000 ft³/s.

b Sept. 2, 4, 13.

c During period of ice effect.



ORIGINAL
(Red)

Preliminary Assessment Report
Amtrak Wilmington Refueling Facility
February, 1993

APPENDIX K

STREAM AND INLAND BAYS FISH SURVEY, 1986, ANNUAL REPORT,
DIVISION OF FISH AND WILDLIFE, DNREC

A total of 32 species was taken in the tidal areas of the Christina and Brandywine Rivers. The overall catch was dominated by spot, Atlantic menhaden, white perch, and banded killifish which accounted for 69% of the total. Most of the other species collected are common to the adjacent portion of the Delaware River estuary.

Important non-resident species which utilize the lower Brandywine and Christina Rivers for spawning and nursery habitat were alewife, blueback herring and white perch. Running ripe adults of all three species were taken during spring sampling. However, no large concentrations indicative of a preferred spawning ground, were encountered during the sampling. The Christina River is approximately 24 km in length from its confluence with the Delaware River to the first dam at Smalley's Pond. This provides more potential unrestricted freshwater spawning habitat than any other system except the Nanticoke River in terms of unrestricted freshwater.

Adult striped bass were taken by electrofisher in the upper tidal portion of the Brandywine River during late spring, summer and fall. A single striped bass prolarvae was taken in the Christina River ichthyoplankton survey. Spawning in either system, however, is doubtful due to the complete absence of eggs in the collections. Spawning does occur in the nearby Delaware River (Weisberg and Burton 1989) and larvae could be carried into the Christina by tidal transport. The proximity of the Christina and Brandywine to the Delaware River spawning grounds means they could function as a nursery area, although no young were taken during the 1988 sampling season.

No American shad of any life stage was taken or observed in the Brandywine/Christina tidal area. The shad spawning run documented in the Brandywine in the late 1960's and early 1970's (Lesser, 1968) probably no longer exists. The elimination of much of the "pollution block" in the lower Delaware River is believed to have allowed shad unrestricted passage to the spawning grounds in the Delaware. The shad observed in the Brandywine noted previously were probably remnants of spawning adults cut off from Delaware River spawning grounds because of a pollution block in the Philadelphia area. The fish ladders in the Brandywine River, which were constructed in the 60's for shad restoration, were removed during 1989 due to their lack of use by fish, general state of disrepair, and possible safety hazard.

Species of important commercial and/or recreational value taken in the tidal portion of the Brandywine and Christina included catfish, striped bass and their hybrids, smallmouth bass, largemouth bass, walleye, and tiger musky. The probable source of the musky, walleye and hybrids was the Pennsylvania Game and Fish Commission. Numerous impoundments on Delaware River tributaries were stocked with these species in recent years.

A new species record for Delaware waters taken in the tidal portion was a single Northern hog sucker (Hypentileum nigricans) taken in the upper tidal section of the Brandywine during fall. This specimen probably also is a migrant from PA waters, rather than a previously uncollected resident species.

Naamans Creek is a tributary to the Delaware River near the Pennsylvania State line. The headwaters are located in the Piedmont region of PA with a gradual transition to Coastal Plain. Shellpot Creek is also a transitional stream with direct discharge into the Delaware River. A very small portion of each stream is tidal but could not be sampled due to access restraints. Both streams are located in sections of the State which receive large amounts of urban runoff. Shellpot Creek suffered a large fishkill during early summer of the sampling year (1988) with most species affected. No definite cause was determined, but a chemical toxicant was suspected as indicated by the fish behavior.

American eel was the most abundant species in both streams, comprising over 30% of the catch in each. This proportion of the catch was higher than the other similar sized streams in the region and is reflective the proximity to the Delaware River and an absence of stream barriers. Game species of adult size were absent to all stations sampled, but there may be some small populations near the confluence with the Delaware River.

Field sampling in the Piedmont region during 1988 was presented in the F-37-R-3 annual report. More information on sampling methods and results can be obtained from this document.

Preliminary Assessment Report
Amtrak Wilmington Refueling Facility
February, 1993

Original
Red

APPENDIX L



STATE OF DELAWARE
DEPARTMENT OF NATURAL RESOURCES
& ENVIRONMENTAL CONTROL
DIVISION OF FISH AND WILDLIFE
89 KINGS HIGHWAY
P.O. BOX 1401
DOVER, DELAWARE 19903

OFFICE OF THE
DIRECTOR

To: Ms. Meet Groot
Division of Air and Waste Mangmt.

Subject: Brandywine River fisheries

Date: April 26, 1993

As per our phone conversation of April 26, 1993 regarding fishing in the tidal portion of the Brandywine River below Market Street, here is the data you requested.

Our data on fishing effort on the Brandywine was generated from a mail-out fishing questionnaire at the end of 1990. Only licensed anglers were surveyed since freshwater (primarily ponds) was our main concern. However, we did request effort information on freshwater fishing in Rivers which does include that portion of the Brandywine which you are interested. Unfortunately our effort data did not distinguish between tidal and non-tidal areas. In addition, unlicensed anglers make up a large portion of the effort in tidal streams especially in urban areas.

According to our survey there was a projected 1900 licensed anglers who spent 16,700 man-days of effort on the Brandywine River (both tidal and non-tidal sections) with a projected total catch of 95,800 fish. Of these fish, 1700 were striped bass (Morone saxatilis) which would be found only in the tidal portion. There was a projected catch of 4900 rock bass (Ambloplites rupestris) taken which would be found almost exclusively in the non-tidal portion. With these fish as indicator species of effort, using the average values of 0.30 rock bass per angler day and 0.10 striped bass per angler day we get a ratio of 3:1 man-days of effort in the non-tidal vs tidal area. This incorporates several assumptions which may not be valid such as it takes an equal amount of effort to catch a rock bass and a striped bass and there is no selectivity or angler preference. However this is one way of coming up with a best guess.

With this caveat in mind there was an estimated 475 licensed

population, I would estimate at least an equal number of
unlicensed anglers if not twice as many.

ORIGINAL
(Red)

Preliminary Assessment Report
Amtrak Wilmington Refueling Facility
February, 1993

ORIGINAL
(B&B)

APPENDIX M

THREATENED, ENDANGERED AND OTHER WILDLIFE SPECIES
OF POTENTIAL CONSERVATION CONCERN

ORIGINAL
2/4/8

<u>Common Name</u>	<u>Scientific Name</u>	Current Legal Status ^a	Rank ^b
Shortnose Sturgeon	Acipenser Brevirosturm	SE, FE	SU
Peregrine Falcon	Falco Peregrinus	SE, FE	S1B, S1N
Great Blue Heron	Ardea Herodius	--	S2B
Great Egret	Casmerodius Albus	--	S2B
Snowy Egret	Egretta Thula	--	S1B
Tricolored Heron	Egretta Tricolor	--	S1B
Little Blue Heron	Florida Caerulea	--	S2B
Cattle Egret	Bubulcus Ibis	--	S2B
Yellow-Crowned Night Heron	Nyctanassa Violaacea	--	S1B
Black-Crowned Night Heron	Nycticorax Nycticorax	--	S1B
Glossy Ibis	Plegadis Falcinellus	--	S2B
Merlin	Falco Columbarius	--	S2N
Ruff	Philoamachus Pugnax	--	S2T

^a SE - State Endangered FE - Federal Endangered

^b Natural Heritage Rank (used for evaluation) See Attached

Additional Comments:

1. Survey data for this site and vicinity are inadequate. Data are primarily derived from general database groups (e.g. Wilmington South Quad). We can surmise from data from specific projects (e.g. colonial waterbirds). Not all species are equally likely to occur in the area in question.
2. Herons and egrets nest on Pea Patch Island - the site of a premier heronry along the Atlantic Coast (10,000+ pairs, 9 species). However, some of these species likely also nest in smaller numbers along the Christina River. Further, the Pea Patch Heronry is not self-contained, i.e. they regularly feed and roost on the mainland. Mainland areas also are used for migratory staging.
3. According to Craig Shirey (DNREC, Fisheries), shortnose sturgeon occur in the Delaware River in the vicinity of the Amtrak Railyard.
4. Peregrine falcons have successfully fledged young from the Delaware Memorial Bridge. A pair may also be trying to nest on a high rise in Wilmington. Peregrines (and other birds of prey) migrate through the area following food sources which include e.g. other birds, mammals, fish, turtles, snakes, and bivalves.

5. The State List of Threatened and Endangered Wildlife Species badly needs to be updated. I have just received authorization to review data in detail and submit to our Director recommendations for revision (incl.: listing, de-listing, down-listing, up-listing). Several biological/ecological criteria are considered including, but not limited to: rarity, distribution, threats, and sensitivity. Species with RANK of S1 and S2 especially will receive close attention, hence, I have included these for your consideration.